The
JOURNAL
of the AMERICAN
OSTEOPATHIC ASSOCIATION

Mar. 1958

Physical medicine and rehabilitation

Editorial: A coin has two sides

10th Annual Volume

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references (1) Becker, R. M.: New England J. Med. *254*:952, 1956. (2) Chen, J. Y. P.; Bard, J. W., and Balsito, A. A.: Antibiotics Symposium, Oct. 3, 1957. In press. (3) Zimmerman, M. C.: Antibiotics Symposium, Oct. 3, 1957. In press. (4) Becker, R. M.: 106th Ann. Meet., A.M.A., New York, N. Y., June 5, 1957. (5) Becker, R. M.: Antibiotics Symposium, Oct. 3, 1957. In press. (6) Minno, A. M., and Davis, G. M.: J.A.M.A. *165*:222, 1957. (7) Davis, G. M.: Discussion, Antibiotics Symposium, Oct. 3, 1957.

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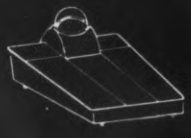

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1. Sc. Exhibit, A.M.A. Meeting, Dec. 2-6, 1957.
2. Sc. Exhibit, Mich. State Med. Meeting, Sept. 25-27, 1957.
3. Gadek, R. J.: Report 912:1957.
4. Sc. Exhibit, N. Y. State Med. Meeting, Feb. 18-21, 1957.

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*Gasster, M.: Med. Times, to be published.

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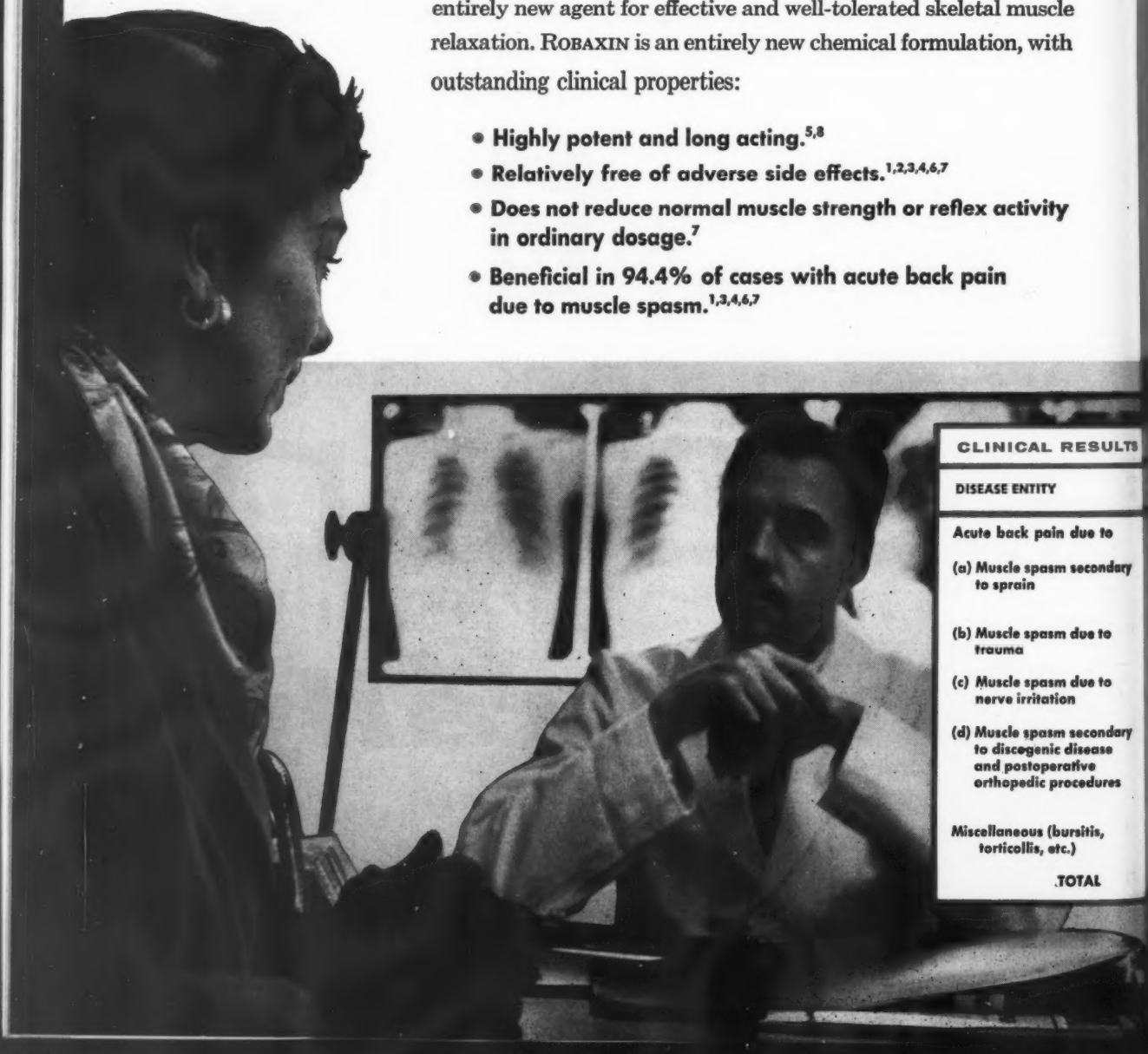

CLINICAL RESULTS
DISEASE ENTITY
Acute back pain due to
(a) Muscle spasm secondary to sprain
(b) Muscle spasm due to trauma
(c) Muscle spasm due to nerve irritation
(d) Muscle spasm secondary to discogenic disease and postoperative orthopedic procedures
Miscellaneous (bursitis, torticollis, etc.)
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13	1-42 days	2-6 Gm.	8	1	3	1	None, 12 Nervousness, 1
5	4-240 days	2.25-6 Gm.	4	1	0	0	None, 5
30	2-28 days	1.5-9 Gm.	24	3	0	3	None, 25 Dizziness, 1 Lightheadedness, 2 Nausea, 2 *
6	3-60 days	4-8 Gm.	6	0	0	0	None, 6
72			59	6	3	4	*Relieved on reduction of dose

References: 1. Carpenter, E. B.: Publication pending. 2. Carter, C. H.: Personal communication. 3. Forsyth, H. F.: Publication pending. 4. Freund, J.: Personal communication. 5. Morgan, A. M., Truitt, E. B., Jr., and Little, J. M.: American Pharm. Assn. 46:374, 1957. 6. Nachman, H. M.: Personal communication. 7. O'Doherty, D.: Publication pending. 8. Truitt, E. B., Jr., and Little, J. M.: J. Pharm. & Exper. Therap. 119:161, 1957.

Indications – Acute back pain associated with: (a) muscle spasm secondary to sprain; (b) muscle spasm due to trauma; (c) muscle spasm due to nerve irritation; (d) muscle spasm secondary to discogenic disease and postoperative orthopedic procedures; and miscellaneous conditions, such as bursitis, fibrositis, torticollis, etc.

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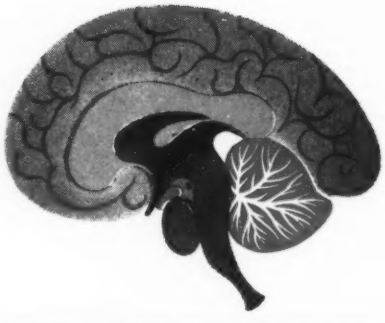

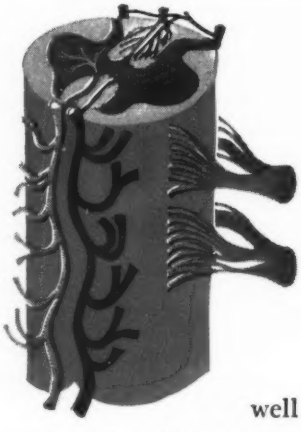

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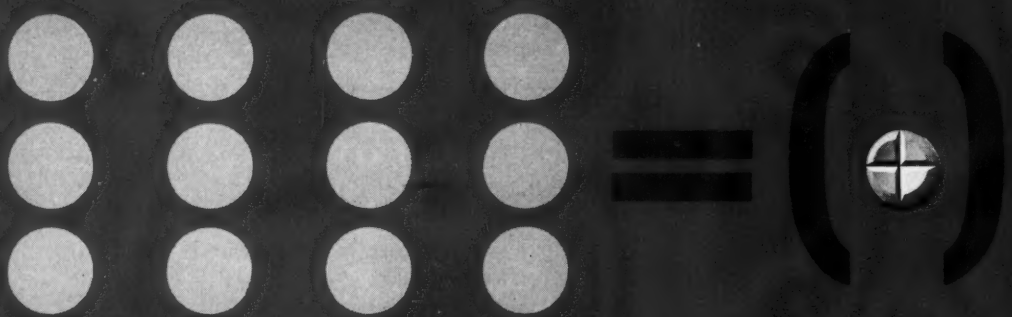

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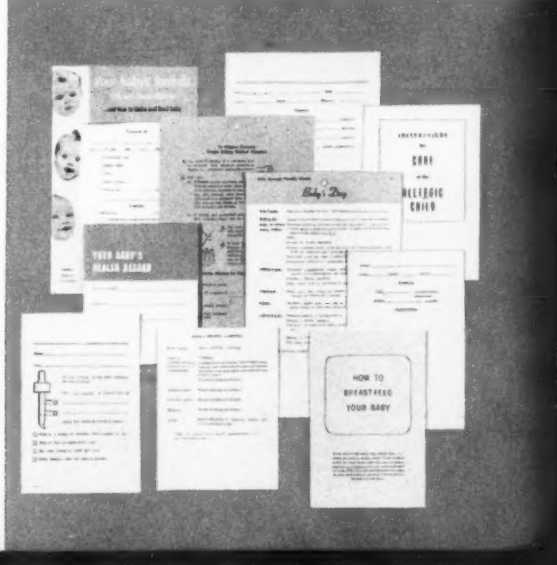
"Formula Products Wall Cards"—
formula prescription blank and preparation instructions and vitamin specifications. Designed to hang in kitchen for convenient reference by mothers. When ordering, specify Lactum, Olac, or Dextri-Maltose. Preparation instructions cover both terminal heating and aseptic methods.

"Prescription Sheets"—
Formula—available for any Mead Johnson product: include preparation specification.
Vitamin—for infants and children, specifying individual 'Vi-Sol' drops or tablets (Tri-Vi-Sol, Poly-Vi-Sol, Deca-Vi-Sol) with area provided for additional physician instructions.

For further information on any of the Mead Johnson printed services, ask your Mead Johnson Representative or write to us, Evansville 21, Indiana.



Mead Johnson
Symbol of service in medicine

your selection of formula

classic milk-formula feedings

protein-generous feedings

flexible feedings

milk-sensitive infants

protein-sensitive infants

nonspecific digestive disorders

Printed services are a

formula feeding of milk-sensitive infants

when you select

Sobee

Hypoallergenic soya formula

"instant" powder / liquid

you provide a hypoallergenic formula well tolerated in milk sensitivity.

Eczema, colic and other symptoms of milk allergy are usually relieved promptly. The pleasant bland taste and "milk-like" color are readily accepted. Sobee needs no added carbohydrate—only water—for well tolerated, growth-supporting feedings.

The leaflet "How to Care for Your Allergic Baby" helps mothers follow your instructions on use of Sobee; it also contains suggestions for care of the skin and general care. Ask your Mead Johnson representative or write to us, Evansville 21, Indiana.

Mead Johnson

Symbol of service in medicine

GITALIGIN STANDARDS

For Controlled Cardiac Therapy

Unusually Wide Margin of Safety [1-3]—
The average therapeutic dose of Gitaligin is only ⅓ the toxic dose, thus providing a margin of safety approximately twice as great as any other glycoside currently available.

—plus *these important clinicopharmacologic advantages:*

Medium Rate of Dissipation—
rate of excretion between rapidly excreted digoxin and slowly excreted leaf or digitoxin.

Complete Absorption—
rapid and complete from gastrointestinal tract.

Uniform Potency—
constant from batch to batch.

Give all your patients with cardiac decompensation the unique benefits of the "wide safety margin" cardiotonic—

Rx

GITALIGIN®

(White's brand of amorphous gitalin)

FOR SAFE, SMOOTH, CONTROLLED CARDIAC THERAPY

White's

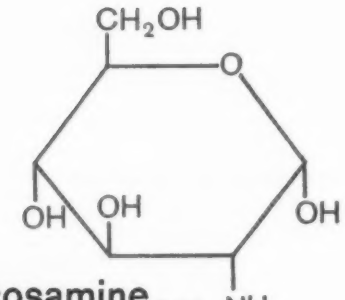
WHITE LABORATORIES, INC.
Kenilworth, N.J.

Supplied:
Gitaligin 0.5 mg. tablets—bottles of 30 and 100.
Gitaligin Injection Ampuls—2.5 mg. in 5 cc. sterile, I.V. solution.
Gitaligin Drops with special calibrated dropper.

Simple dosage equivalents:
It is easy to switch patients who are being maintained on other digitalis preparations to Gitaligin by substituting the equivalent daily maintenance dose of Gitaligin listed below.

0.5 mg. (1 tablet) of Gitaligin is approximately equivalent to 0.1 Gm. (1½ gr.) digitalis leaf, 0.5 mg. digoxin or 0.1 mg. digitoxin.

1. Harris, R., and Del Giacco, R. R.: Am. Heart J. 52:300 (Aug.) 1956.
2. Weiss, A., and Steigmann, F.: Am. J. M. Sc. 227:188 (Feb.) 1954.
3. Dimitroff, S. P.; Griffith, G. C.; Thorner, M. C., and Walker, J.: Ann. Int. Med. 38:1190 (Dec.) 1953. 4. Heitmanek, M. R., and Herrmann, G. R.: Texas J. M. 51:338 (May) 1955. 5. Batterman, R. C.; DeGraff, A. C., and Rose, O. A.: Circulation 5:201 (Feb.) 1952.



Glucosamine ... a physiologic absorption-enhancing agent

In the search for the ideal antibiotic-enhancement agent, Pfizer had three requirements to fill: (1) the adjuvant had to produce significantly higher antibiotic blood levels, (2) it had to achieve these higher blood levels consistently from patient to patient, (3) the adjuvant itself had to be perfectly safe to use.

Enhancement studies involving 84 adjuvants (including sorbitol, citric acid, sodium hexametaphosphate, and other organic acids and chelating agents, as well as phosphate complex and other analogs), and 30,000 blood level determinations revealed glucosamine as the enhancement agent of choice. Not only did glucosamine considerably increase antibiotic blood levels, but it produced these higher blood levels more consistently in crossover tests. And, importantly, glucosamine has no adverse effect in the human body.

Glucosamine is a normal physiologic metabolite that is found widely in the human body. Glucosamine does not irritate the gastrointestinal tract; it is sodium free and releases only four calories of energy per gram. Further, there is evidence that glucosamine may influence favorably the bacterial flora of the intestine.

1

faster absorption higher tetra-cycline blood levels

new well-tolerated

COSA-

GLUCOSAMINE-POTENTIATED TETRACYCLINE

Three advantages of
glucosamine-potentiated
tetracycline, for
your consideration

2 3

achieved with
physiologic advantages
of glucosamine a normal human metabolite

greater consistency
of higher tetracycline
blood levels

TETRACYN*

The most widely prescribed broad-spectrum antibiotic now potentiated with glucosamine, the enhancing agent of choice

Capsules, 250 mg., 125 mg.

Half strength (125 mg. capsule) for long-term indications or pediatric use

Pfizer PFIZER LABORATORIES, *Division, Chas. Pfizer & Co., Inc.*, Brooklyn 6, N. Y.

*Trademark

Meat...

and the Medically Acceptable Reducing Diet

In any medically acceptable reducing diet prescribed today, meat can serve as an important nutritional component.

Curtailment of the daily calorie allowance must not deny the patient the protein, vitamins, and minerals required for good nutritional health. Fad diets which eliminate certain basic foods can hardly be considered medically acceptable.

Calorie for calorie, no other commonly eaten food supplies the quality and quantity of protein which lean meat provides. Its B vitamins and minerals are needed daily, regardless of calorie restrictions.

Even when coexistent pathological conditions require that the calorie-reduced diet be further limited to foods low in fiber or in sodium, meat fills the same important place in each day's food allowance. The fat content of lean meat is relatively low, and meat can be prepared in various ways, as called for by almost every special diet.

In any diet which must deviate from accustomed eating habits, the taste appeal of meat makes it easier for the patient to adhere to the restrictions imposed.

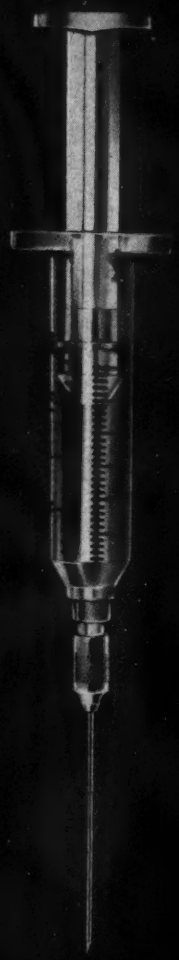
The nutritional statements made in this advertisement have been reviewed by the Council on Foods and Nutrition of the American Medical Association and found consistent with current authoritative medical opinion.

American Meat Institute
Main Office, Chicago... Members Throughout the United States

NEW

STYLEX®

expendable hypodermic syringe



HOSPITAL PROVEN

SAFER
guaranteed sterility · nonpyrogenic · reduces danger of cross-infection.

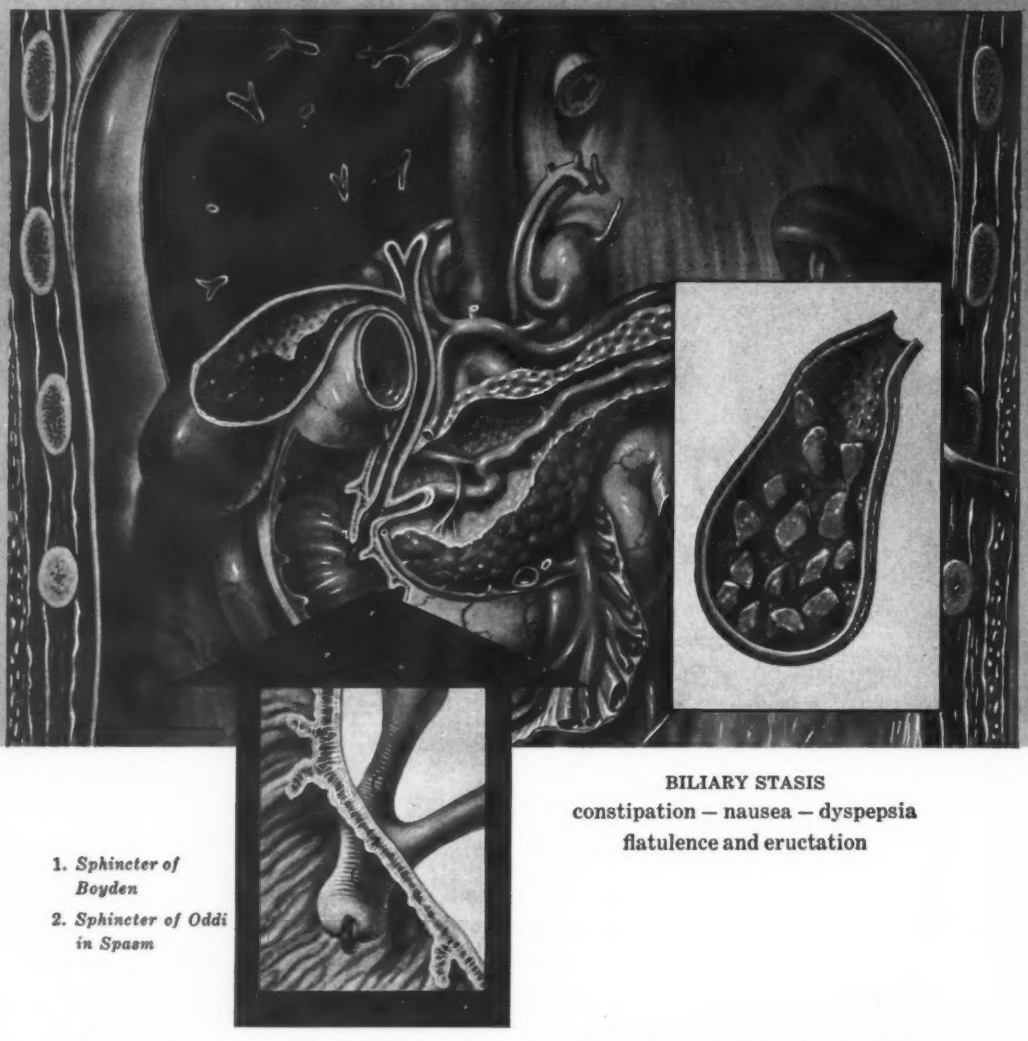
MORE CONVENIENT
saves time · ends cleaning, sterilization, and needle sharpening.

MORE EFFICIENT
significant increase in over-all efficiency reported by current hospital users.

PHARMASEAL LABORATORIES
Affiliate of DON BAXTER, INC.
GLENDALE 1, CALIFORNIA

PHARMASEAL®

®Trade-mark



1. *Sphincter of Boyden*
2. *Sphincter of Oddi in Spasm*

BILIARY STASIS
constipation — nausea — dyspepsia
flatulence and eructation

The primary function of the Cholan preparations is to induce hydrocholeretic action. The active ingredient is the pure oxidized bile acid, dehydrocholic acid, Maltbie. The Cholans increase the volume of low viscosity bile flow to flush out the biliary tract. In addition, there is a suitable Cholan dosage form to provide symptomatic and physiologic relief of biliary stasis, spasm or emotional factors that cause or complicate digestive disturbance, hepato-biliary dysfunction, constipation of biliary origin, cholecystitis, cholangitis, or postoperative treatment.

Cholan DH® — hydrocholeretic action increases the flow and heightens the pressure of low viscosity bile for normal flushing of the biliary tract. In fact, Cholan DH will increase the volume of bile by 33% to 100%.

Cholan V (hydrocholeretic-spasmolytic) — the volume and pressure of thin bile flow in the biliary tract is increased, and the V mg. of homatropine methylbromide relax the gallbladder and biliary sphincters in severe and chronic spasm.

Cholan HMB — a combination for the increased flow of thin bile, smooth muscle relaxation for the gallbladder and biliary sphincters, and mild sedation for patients with hepato-biliary dysfunction further complicated by emotional factors.

NORMAL BILIARY FUNCTION

Sphincter Muscles in Normal Relaxation

Cholan

hydrocholeretic – spasmolytic

With **Cholan** *therapy, the distressing symptoms of constipation, nausea, dyspepsia, flatulence and eructation disappear. Normal digestive function is quickly restored.*

Cholan DH® – dehydrocholic acid, Maltbie, 250 mg., a chemically pure oxidized bile acid. Dosage: 1 or 2 tablets t.i.d. after meals. **Cholan V** – dehydrocholic acid, Maltbie, 250 mg., and 5 mg. homatropine methylbromide. Dosage: 1 or 2 tablets t.i.d. after meals. **Cholan HMB** – dehydrocholic acid, Maltbie, 250 mg., 2.5 mg. homatropine methylbromide, and 8 mg. phenobarbital. Dosage: 1 or 2 tablets t.i.d. after meals.

Supplied: Bottles of 100, 500 and 1,000 tablets.

For a trial supply write to Professional Service Department

Maltbie Laboratories Division • Wallace & Tiernan Inc. • Belleville 9, N. J.

PCN-81

NOW...A NEW TREATMENT

'CARDILATE'*

for THE PROPHYLAXIS OF ANGINA PECTORIS

'Cardilate' tablets shaped for easy retention in the buccal pouch

"... the degree of increase in exercise tolerance which sublingual erythrol tetranitrate permits, approximates that of nitroglycerin, amyl nitrite and octyl nitrite more closely than does any other of the approximately 100 preparations tested to date in this laboratory."

"Furthermore, the duration of this beneficial action is prolonged sufficiently to make this method of treatment of practical clinical value."

Riseman, J. E. F., Altman, G. E., and Koretsky, S.: Nitroglycerin and Other Nitrites in the Treatment of Angina Pectoris. Circulation (Jan.) 1958.

*'Cardilate' brand Erythrol Tetranitrate SUBLINGUAL TABLETS, 15 mg. scored

BURROUGHS WELLCOME & CO. (U.S.A.) INC., Tuckahoe, New York

in
anti-inflammatory effects
with lower dosage
(averages 1/3 less than
prednisone)

The
Achievements
of

Aristocort®

Triamcinolone LEDERLE

in the collateral
hormonal effects associated
with all previous corticosteroids

- No sodium or water retention
- No potassium loss
- No interference with psychic equilibrium
- Low incidence of peptic ulcer and osteoporosis

Aristocort is available in 2 mg. scored tablets (pink), bottles of 30; and 4 mg. scored tablets (white), bottles of 30 and 100.

Lederle

The Achievement in Skin Diseases: In a study of 26 patients with severe dermatoses, ARISTOCORT was proved to have potent anti-inflammatory and antipruritic properties, even at a dosage only ⅔ that of prednisone.[1]... Striking affinity for skin and tremendous potency in controlling skin disease, including 50 cases of psoriasis, of which over 60% were reported as *markedly improved*[2]... absence of serious side effects specifically noted.[1,2,3]

The Achievement in Rheumatoid Arthritis: Impressive therapeutic effect in most cases of a group of 89 patients[4]...6 mg. of ARISTOCORT corresponded in effect to 10 mg. of prednisone daily (in addition, gastric ulcer which developed during prednisone therapy in 2 cases disappeared during ARISTOCORT therapy).[5]

Arist

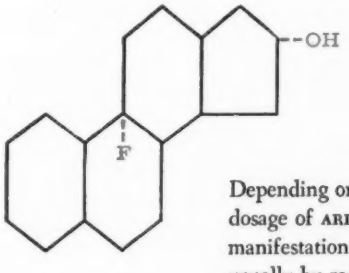
1. Rein, C. R., Fleischmajer, R., and Rosenthal, A. L.: J. A. M. A. *165*:1821, (Dec. 7) 1957.
2. Shelley, W. B., and Pillsbury, D. M.: Personal Communication.
3. Sherwood, A., and Cooke, R. A.: Personal Communication.
4. Freyberg, R. H., Berntsen, C. A., and Hellman, L.: Paper presented at International Congress on Rheumatic Diseases, Toronto, June 25, 1957.
5. Hartung, E. F.: Personal Communication.
6. Schwartz, E.: Personal Communication.
7. Sherwood, A., and Cooke, R. A.: J. Allergy *28*:97, 1957.
8. Hellman, L., Zumoff, B., Kretshmer, N., and Kramer, B.: Paper presented at Nephrosis Conference, Bethesda, Md., Oct. 26, 1957.
9. Ibid.: Personal Communication.
10. Barach, A. L.: Personal Communication.
11. Segal, M. S.: Personal Communication.
12. Cooke, R. A.: Personal Communication.
13. Dubois, E. L.: Personal Communication.

The Achievement in Respiratory Allergies: "Good to excellent" results in 29 of 30 patients with chronic intractable bronchial asthma at an average daily dosage of only 7 mg.[6]... Average dosage of 6 mg. daily to control asthma and 2 to 6 mg. to control allergic rhinitis in a group of 42 patients, with an actual reduction of blood pressure in 12 of these.[7]

The Achievement in Other Conditions: Two failures, 4 partial remissions and 8 cases with complete disappearance of abnormal chemical findings lead to characterization of ARISTOCORT as possibly the most desirable steroid to date in treatment of the nephrotic syndrome.[8,9]... Prompt decrease in the cyanosis and dyspnea of pulmonary emphysema and fibrosis, with marked improvement in patients refractory to prednisone.[10,11,12]... Favorable response reported for 25 of 28 cases of disseminated lupus erythematosus.[13]

tocort®

Triamcinolone LEDERLE



Depending on the acuteness and severity of the disease under therapy, the initial dosage of ARISTOCORT is usually from 8 to 20 mg. daily. When acute manifestations have subsided, maintenance dosage is arrived at gradually, usually by reducing the total daily dosage 2 mg. every 3 days until the smallest dosage has been reached which will suppress symptoms.

Comparative studies of patients changed to ARISTOCORT from prednisone indicate a dosage of ARISTOCORT lower by about ⅓ in rheumatoid arthritis, by ⅓ in allergic rhinitis and bronchial asthma, and by ⅓ to ½ in inflammatory and allergic skin diseases. With ARISTOCORT, no precautions are necessary in regard to dietary restriction of sodium or supplementation with potassium.

ARISTOCORT is available in 2 mg. scored tablets (pink), bottles of 30; and 4 mg. scored tablets (white), bottles of 30 and 100.

Lederle LEDERLE LABORATORIES DIVISION, AMERICAN CYANAMID COMPANY, PEARL RIVER NEW YORK

"'You are old, Father William,' the young man said,
'And your hair has become very white;
And yet you incessantly stand on your head—
Do you think at your age, it is right?'"

ALICE'S ADVENTURES IN WONDERLAND* DRAWING: JOHN TENNIEL, COURTESY GROSSET & DUNLAP

VASTRAN is the easy way

to dilate constricted intracranial vessels and increase circulation in older patients.

VASTRAN helps relieve fatigue by increasing intracranial circulation and improving cerebral nutrition, brings a comfortable sense of warmth and well-being. VASTRAN relieves elderly patients' cold hands and feet through warming peripheral vasodilating action of nicotinic acid.

VASTRAN also contains essential B-complex coenzyme factors and ascorbic acid to enhance cellular metabolism.

VASTRAN *is versatile:* Indicated in osteoarthritis, bursitis, myositis, fasciitis, tendinitis, peripheral neuritis, low back disorders and common strains. VASTRAN is also beneficial in intermittent claudication, Raynaud's disease, Buerger's disease, thromboangiitis, chilblains and cold hands and feet.

Each VASTRAN® tablet contains: nicotinic acid, 50 mg.; ascorbic acid, 100 mg.; riboflavin, 5 mg.; thiamine mononitrate, 10 mg.; pyridoxine hydrochloride, 1 mg.; cobalamin (vitamin B_{12} activity), 2 mcg.; calcium pantothenate, 5 mg.

Add Vastran to the over-all treatment of your aging patients.

Dosage: VASTRAN 1 tablet q.i.d. before meals.

VASTRAN AMP – more than injectable VASTRAN: In acute or severe conditions, start therapy with injectable VASTRAN AMP solution. Rapid vasodilation is complemented by adenosine-5-monophosphoric acid, as an aid in restoration of normal muscle function through increasing energy stores at the biochemical level. VASTRAN AMP contains in each cc.: nicotinic acid (as sodium salt), 20 mg.; adenosine-5-monophosphoric acid (as sodium salt), 25 mg.; and vitamin B_{12}, 75 mcg.

Note: VASTRAN tablets, for peripheral circulation impairment, are not to be confused with VASTRAN FORTÉ capsules, for hypercholesteremia.

References and literature on request:

**For your complimentary first edition portfolio of 8 full-color "Alice" prints from the famous Tenniel plates, 8½" x 11", suitable for framing (value $7.50), write to:*

WAMPOLE LABORATORIES
Proof Dept.
35 Commerce Road, Stamford, Conn.

even if your patient is a

gandy dancer†

†railroad man's term for track section hand

...he'll be back on the track with

FLEXILON*

(FLEXIN® + TYLENOL®)

Low back syndromes... sprains... strains rheumatic pains...

FLEXILON gets them back on the job *fast.*

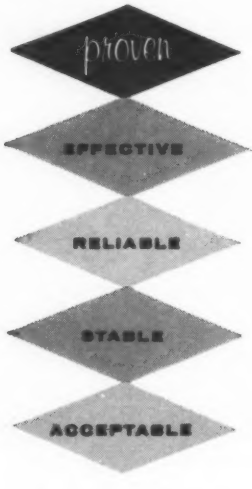
Each tablet contains:
FLEXIN® Zoxazolamine‡ . . . . . 125 mg.
The most effective oral skeletal muscle relaxant
TYLENOL® Acetaminophen . . . . 300 mg.
The preferred analgesic for painful musculoskeletal disorders
supplied: Tablets, enteric coated, orange, bottles of 50.

‡U.S. Patent Pending *Trade-Mark

McNEIL LABORATORIES, INC • PHILADELPHIA 32, PA.

simplicity with security

when the "jelly-alone" method
is advised, **NEW** Koromex
the outstandingly competent
spermatocidic agent...
is now available
to physicians.



AVAILABILITY, ANOTHER H-R "FIRST". . .
Large tube of Koromex vaginal jelly, 125 grams, with patented measured dose applicator, is supplied in a washable, appealingly feminine zippered kit, at no extra charge, for home storage.

The 125 gram tube of Koromex may also be bought separately at any time.

ACTIVE INGREDIENTS:
IN A SPECIAL BARRIER TYPE BASE
Boric Acid 2.0%
Polyoxyethylenenonylphenol 0.5%
Phenylmercuric Acetate 0.02%
Factual literature sent upon request.

HOLLAND-RANTOS CO., INC. • 145 HUDSON STREET, NEW YORK 13, N. Y.

FOR PROMPT UTILIZATION

AND BETTER STORAGE

HOMAGENETS®

The only homogenized vitamins in solid form

Homagenets are unusually palatable—and good taste is especially important to your patients. Of more interest to the physician is the homogenization process. This presents both oil and water soluble vitamins in microscopic particles. Thus the vitamins in Homagenets are better absorbed and utilized—and stored longer.[1] These are definite advantages to your patient.

1. Lewis, J.M., et al.: J. Pediat. 31:*496.*

THE ADVANTAGES OF HOMAGENETS

- Pleasant, candy-like flavor
- Better absorbed, better utilized
- Excess vitamin dosage unnecessary
- Longer storage in the body
- No regurgitation, no "fishy burp"
- May be chewed, swallowed or dissolved in the mouth.

Homagenets are available in five formulas: Prenatal, Pediatric, Therapeutic, Geriatric and Aoral (brand of vitamin A).

THE S. E. MASSENGILL COMPANY
Bristol, Tennessee

TURN THE PAGE for laboratory proof of the prompt dispersion of Homagenets

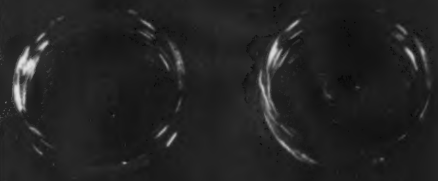
VISUAL PROOF OF THE RAPID DISPERSION OF HOMAGENETS®

These photographs show the dispersion time of a Homagenet and a soft gelatin capsule in artificial gastric juice at 37° C.
Homagenets are available in five formulas:
Prenatal, Pediatric, Therapeutic,
Geriatric and Acetal, brand of vitamin A.
Currently, mailings will be forwarded only at your request.
Write for samples and literature.

THE S. E. MASSENGILL COMPANY

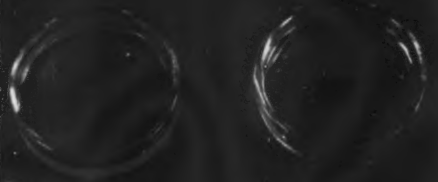
BRISTOL, TENNESSEE

NEW YORK • KANSAS CITY • SAN FRANCISCO



1. Immediately after placement in Petri dishes.

2. Six minutes later.



3. Twelve minutes later.

4. Two hours and 12 minutes later.

Take a second look...

diagnose that price tag

IN the low-cost G-E PATRICIAN you'll find *true economy of purchase.* Admittedly, there may be x-ray units with slightly lower price tags. But when you make comparative evaluations — component by component — the PATRICIAN is at the head of its class. Here's why:

- Totally new design — not a modified older version.
- Precisely *counterbalanced* fluoroscopic screen that remains parallel to table at all times — no whip-lash usually found in cheaper *counterpoised* units.
- Full-length (81-inch) table — no clumsy extensions needed for tall patients.
- Independent tube stand — no table-mounted compromise. Assures absolute freedom in positioning tube to patient . . . simplifies radiographic positioning.
- Built-in quality and endurance? Yes! Both are always associated with G.E. X-Ray equipment. But look at a few other PATRICIAN features: 200-ma, 100-kvp, full-wave power . . . electronic timing . . . double-focus rotating-anode tube . . . automatic reciprocating Bucky . . . provision for adding a spot-film unit.

Check this low-cost way to multiply your professional efficiency with your G-E x-ray representative. Or use this handy coupon.

Progress Is Our Most Important Product

GENERAL ELECTRIC

X-RAY DEPARTMENT
GENERAL ELECTRIC CO.
Milwaukee 1, Wisconsin, Rm. R-31

- ☐ Please send me your 16-page PATRICIAN bulletin
- ☐ Facts about deferred payment
- ☐ MAXISERVICE® rental plan

Name.....

Address.....

CAMP-ZIEMAN LYMPHEDEMA ARM SLEEVE

affords excellent control of the swollen arm after radical mastectomy

The Camp-Zieman Lymphedema Arm Sleeve provides consistent control over the full length of the arm and helps relieve disfiguration, distress and disablement arising from edema following radical mastectomy. Made of kiddie elastic with transverse stretch, the Camp-Zieman arm sleeve adjusts easily to swelling needs, is simply applied and assists the patient to early mobilization with graded exercises. Adjustment lacer extends the full length of the arm on the inner side; shield under lacer protects the skin; the mitten being buttoned to the sleeve, is detachable and an extra mitten is provided for laundering without interruption in treatment. Available in two lengths for either right or left arm.

1908 50TH YEAR 1958

CAMP TRADE MARK

S. H. CAMP and COMPANY

Jackson, Michigan

NEW
LEDERLE
HEMATINIC
FEATURES
NEW KEY COMPONENT

FALVIN*

with AUTRINIC*

INTRINSIC FACTOR CONCENTRATE WITH B_{12}

FALVIN FEATURES AUTRINIC—the new, highly active Intrinsic Factor Concentrate that promotes intestinal absorption of Vitamin B_{12}, resulting in serum B_{12} levels significantly higher than those obtained with Intrinsic Factors now in common use or Vitamin B_{12} alone

HIGHER SERUM B_{12} LEVELS FOR A BETTER PATTERN OF RESPONSE IN ANTI-ANEMIA THERAPY

THERAPEUTIC for anemia due to deficiency of recognized hemopoietic elements

SUPPORTIVE where anemia is associated with other pathology

PROPHYLACTIC in marginal deficiency states which may predispose to clinically overt anemia

Each capsule contains:

Vitamin B_{12} with Autrinic* Intrinsic Factor Concentrate	1 U.S.P. Oral Unit
Ferrous Sulfate Exsiccated	300 mg.
Ascorbic Acid (C)	75 mg.
Folic Acid	1 mg.

Dosage: Two Capsules Daily

FALVIN WITH AUTRINIC—INTRINSICALLY BETTER IN ANEMIA

*Reg. U. S. Pat Off.

Lederle LEDERLE LABORATORIES DIVISION, AMERICAN CYANAMID COMPANY, PEARL RIVER, N. Y.

Consistent Gains in Functional Capacity Can Be Achieved with Conservative Therapy

The unemployable arthritic once again may undertake full employment and normal recreation. Patients once confined to the home or wheel chair often find it possible to engage in light work. And even bedridden patients can walk with comfort again. These are the benefits of conservative therapy as demonstrated in long-term studies.[1,2,3] In fact, in these four-year comparative studies of salicylate and cortisone, the corticoid showed no superiority over conservative therapy.

Superior Conservative Therapy Provided by Buffered Pabirin

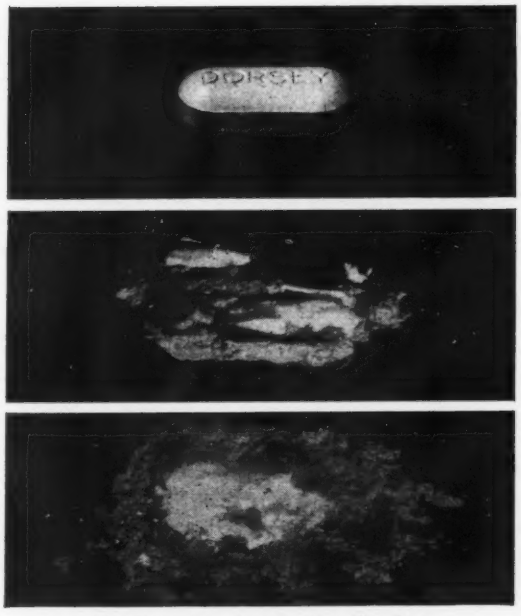
Buffered Pabirin epitomizes modern, conservative therapy without the serious complications of corticoid therapy. Adrenal atrophy, peptic ulcers, moon-face, hypertension or psychotic reactions, a constant risk whenever corticoids are used,[4-7] will not occur with Buffered Pabirin. Month after month, Buffered Pabirin can be administered with a minimum of problems to patient and physician, and without the side effects common to the use of salicylates alone.

Buffered Pabirin combines new form and formulation for faster pain relief, improved gastric tolerance

Each tablet of Buffered Pabirin consists of an outer layer containing a buffer (aluminum hydroxide), para-aminobenzoic acid and ascorbic acid; an inner core of aspirin. The outer layer quickly releases aluminum hydroxide which affords superior buffering action and protects against gastric irritation. The core of Buffered Pabirin then disintegrates rapidly, permitting fast absorption of acetylsalicylic acid. PABA potentiates the acetylsalicylic acid and creates high salicylate blood levels. Ascorbic acid counteracts vitamin C depletion.

The new form and formulation of Buffered Pabirin provides high and sustained salicylate blood levels. It may be administered over long periods of time without the nausea, dyspepsia or other gastrointestinal symptoms so frequently experienced with salicylates alone.

in osteoarthritis, gouty arthritis, rheumatoid arthritis, bursitis, fibrositis, or tendinitis



Photographs show 2-stage Tandem Release disintegration

Buffered Pabirin® *Tablets*

Each tablet contains:

Acetylsalicylic acid (5 gr.).....300 mg.
Para-aminobenzoic acid (5 gr.).....300 mg.
Ascorbic acid..... 50 mg.
Dried aluminum hydroxide gel.....100 mg.
All Buffered Pabirin is sodium and potassium free

Dosage: Two or three tablets 3—4 times daily.

References: 1. Report of Joint Committee, Medical Research Council & Nuffield Foundation, Treatment of Rheumatoid Arthritis, British Medical Journal (May 29) 1223-1227, 1954. 2. ibid. (April 13) 847-850, 1957. 3. Hart, D.; Bagnall, A. W.; Bunim, J. J., and Polley, F. H.: Ninth International Congress on Rheumatic Diseases, Toronto, Ont. (June 25) 1957. 4. Lewis, L., *et al.*: Ann. Int. Med. *39*:116, 1953. 5. Demartini, F., *et al.*: J.A.M.A. *158*:1505, 1955. 6. Segaloff, A.: Ann. Allergy *12*:565, 1954. 7. Kern, R. A.: Am. J. M. Sc. *233*:430, 1957.

SMITH-DORSEY • a division of The Wander Company • Lincoln, Nebraska

for So Many Essential Nutrients..

Protein... of excellent quality

Energy... readily available

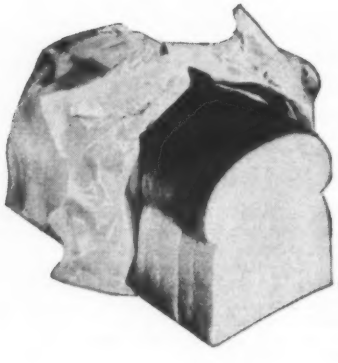
B vitamins... high in proportion to calories

Minerals... especially iron and calcium

Enriched Bread

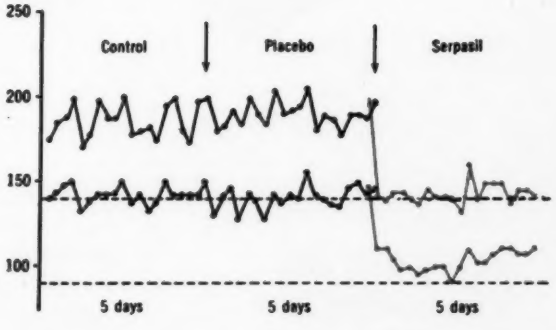
is basic,

integral, compatible in most all diets in health and disease...regardless of dietary adjustment needed. Its fat content is minimal.



AMERICAN BAKERS ASSOCIATION
20 North Wacker Drive • Chicago 6, Illinois

first thought for high b.p.*



* Chart shows actual response to Serpasil in a patient with benign essential hypertension (data on request). Consider Serpasil® (reserpine CIBA) (1) alone to lower blood pressure gradually and safely in most cases of mild to moderate hypertension; (2) as a primer in severe hypertension before more potent drugs are introduced; (3) as a background agent in all grades of hypertension to permit lower dosage and thus minimize side effects of other antihypertensives.

C I B A

there's pain and inflammation here... it could be mild or severe, acute or chronic, primary or secondary fibrositis—or even early rheumatoid arthritis

more potent and comprehensive treatment than salicylate alone

. . . assured anti-inflammatory effect of low-dosage corticosteroid[1]

. . . additive antirheumatic action of corticosteroid plus salicylate[2-5] brings rapid pain relief; aids restoration of function.

. . . wide range of application including the entire fibrositis syndrome as well as early or mild rheumatoid arthritis

more manageable corticosteroid dosage

. . . much less likelihood of treatment-interrupting side effects[1-6]

. . . simple, flexible dosage schedule

in any case
it calls for

Sigmagen®

corticoid-salicylate compound

tablets

Acute conditions: Two or three tablets four times daily. After desired response is obtained, gradually reduce daily dosage and then discontinue.

Subacute or chronic conditions: Initially as above. When satisfactory control is obtained, gradually reduce the daily dosage to minimum effective maintenance level. For best results administer after meals and at bedtime.

Precautions: Because SIGMAGEN contains prednisone, the same precautions and contraindications observed with this steroid apply also to the use of SIGMAGEN.

Composition

METICORTEN® (prednisone)	0.75 mg.
Acetylsalicylic acid	325 mg.
Aluminum hydroxide	75 mg.
Ascorbic acid	20 mg.

Packaging: SIGMAGEN Tablets, bottles of 100 and 1000.

References: 1. Spies, T. D., et al.: J.A.M.A. 159:645, 1955. 2. Spies, T. D., et al.: Postgrad. Med. 17:1, 1955. 3. Gelli, G., and Della Santa, L.: Minerva Pediat. 7:1456, 1955. 4. Guerra, F.: Fed. Proc. 12:326, 1953. 5. Busse, E. A.: Clin. Med. 2:1105, 1955. 6. Sticker, R. B.: Panel Discussion, Ohio State M. J. 52:1037, 1956.

SCHERING CORPORATION • BLOOMFIELD, N. J.

SG-J-648

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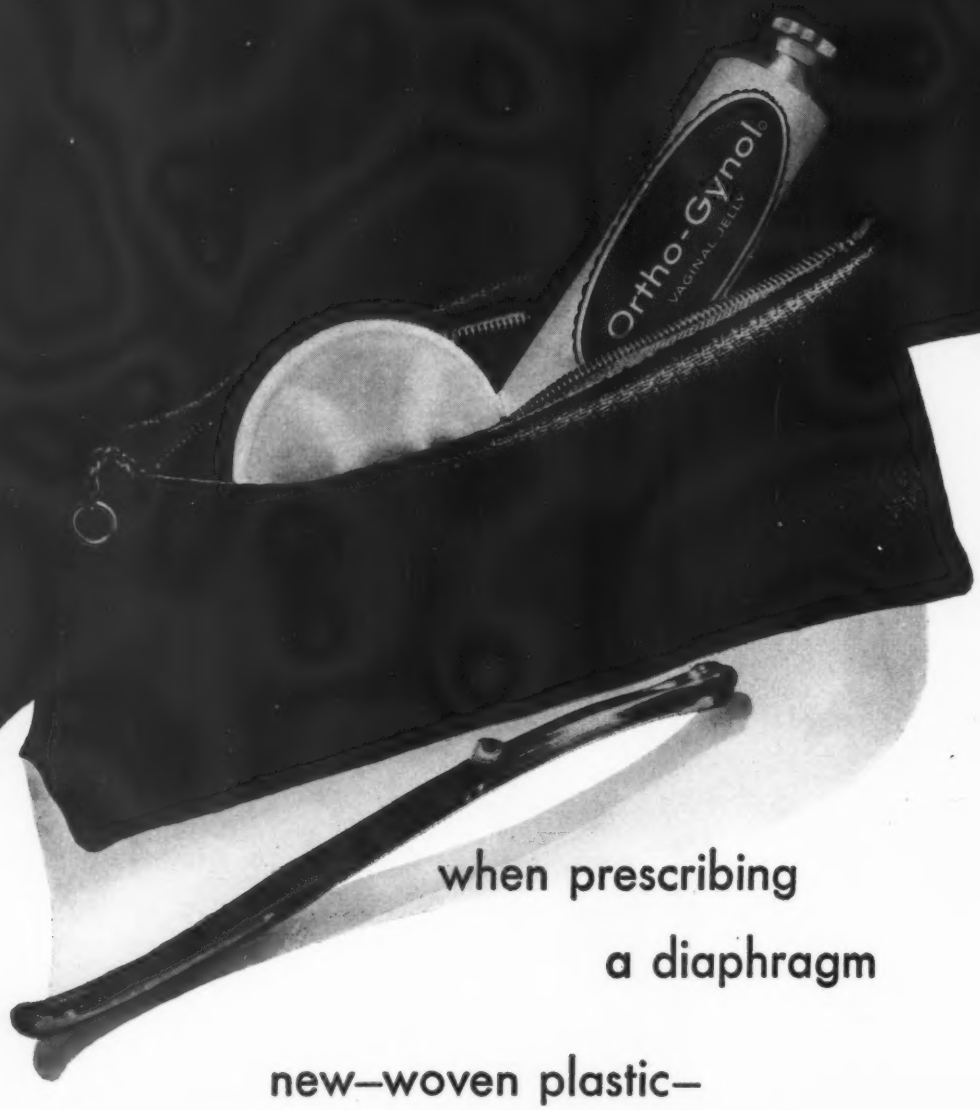


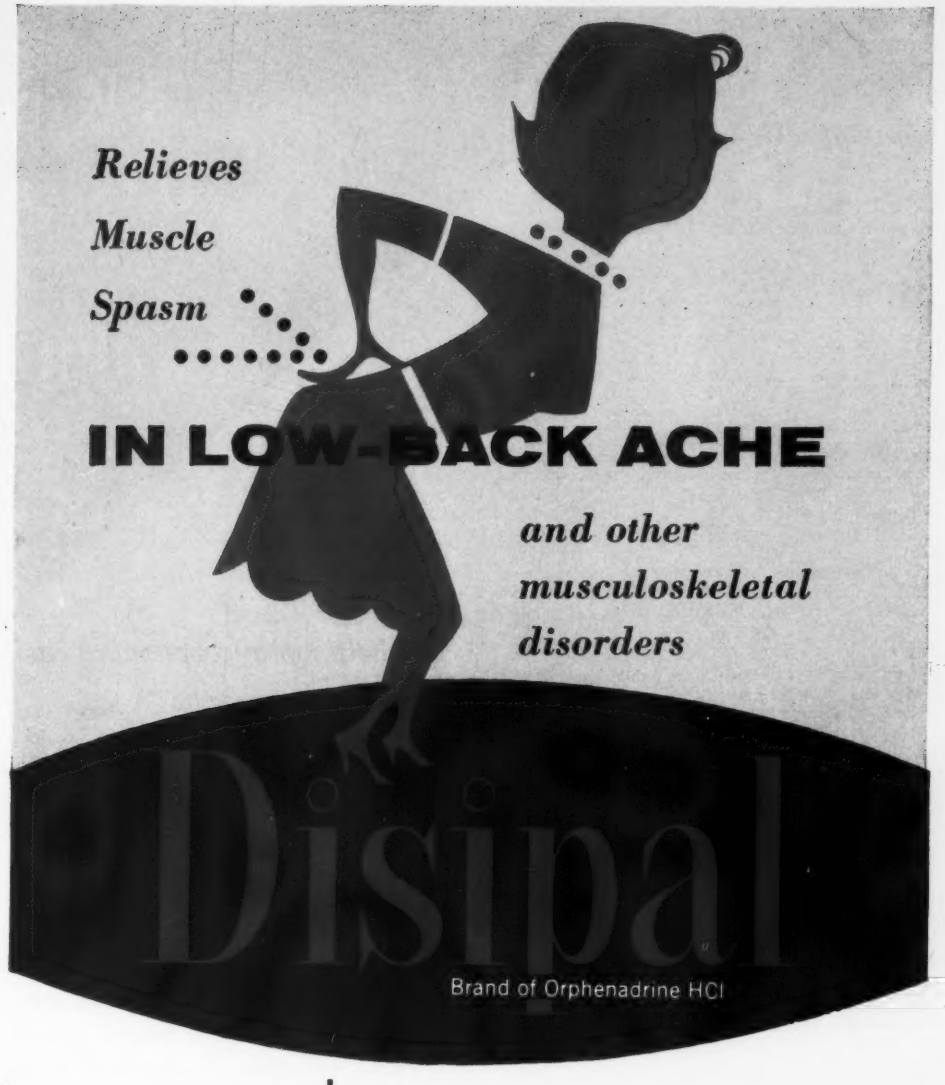
when prescribing

a diaphragm

new—woven plastic—

Ortho Kit®

Ortho



In Parkinsonism

Highly selective action...energizing against weakness, fatigue, adynamia and akinesia...potent against sialorrhea, diaphoresis, oculogyria and blepharospasm... lessens rigidity and tremor... alleviates depression...safe... even in glaucoma.

*Trademark of Brocades-Stheeman & Pharmacia. U.S. Patent No. 2,567,351. Other patents pending.

Relieves Spasm, Pain, and Depression too

In muscle spasm due to sprains, strains, herniated intervertebral disc, fibrositis, noninflammatory arthritic states and many other musculoskeletal disorders, the first demand is for relief. Disipal fills this need. It is quickly effective in skeletal muscle spasm almost regardless of origin. Its mood-alleviating effect braces the patient against the depression so often accompanying severe pain of any type.

Dosage: 1 tablet (50 mg.) t.i.d.

Riker LOS ANGELES

easier
antipyretic–analgesic
relief

you help her recover more easily
when you prescribe

Tempra

Acetaminophen, Mead Johnson

drops / syrup

Tempra is the first physician-controlled antipyretic–analgesic in two liquid dosage forms–wild-cherry-flavored Drops and mint-flavored Syrup. Both are readily accepted, well tolerated and easy for the mother to give, without forcing or fussing.

Since Tempra is on Rx only, you have better control of medication and dosage... parents have added confidence.

For detailed brochure on Tempra–you are cordially invited to ask your Mead Johnson Representative or write us, Evansville 21, Indiana.

Mead Johnson
Symbol of service in medicine

TE439

How Old is Too Old for Tranquilizers ?

The psychological needs of the elderly confront physicians with one of their most perplexing problems. Perhaps no other patient group suffers so much from emotional distress. Yet, precisely because of their age, geriatric patients often seem beyond the reach of tranquilizing treatment.

When tranquilization seems risky . . .

They are too much beset by complicating chronic ailments, too susceptible to serious side effects. Ataraxia is clearly indicated, yet the doctor cannot risk side reactions on liver, blood or nervous system.

Is there an answer to this dilemma?

We feel there is. In four recent papers investigators have reported good results with ATARAX in patients up to 90 years of age.* In one study, **improvement was "pronounced" in 76%, "good" in an additional 18.5%.*** ATARAX has been successfully used in such cases as senile anxiety, agitation, hyperemotivity and persecution complex.* On ATARAX, patients became ". . . quieter and more manageable. They slept better and demonstrated improved relations with other patients and hospital personnel. Even their personal hygiene improved, and they required less supervisory management."*

. . . ATARAX is safe

Yet even in the aged, ATARAX has given "no evidence of toxicity. . . . Complete liver function tests and blood studies were made on all patients after two months of therapy. . . . There were no significant abnormalities."* With still other elderly patients "tolerance to the drug was excellent, even in cases where the patients were given relatively high doses."* Similarly, no parkinsonian effects have been observed on ATARAX therapy.

Nor does ATARAX make your patients want to sleep all day. Instead, they can better take care of themselves, because ATARAX leaves them both calm and alert. In sum, ATARAX ". . . does not impair psychic function and has a minimum of side effects. . . . It appears that ATARAX is a safe drug. . . ."*

These, undoubtedly, are the results you want when emotional problems beset your geriatric patients. For the next four weeks, won't you prescribe tiny ATARAX tablets or pleasant-tasting ATARAX syrup – both so readily acceptable to the elderly.

*Documentation on request

ATARAX®
(BRAND OF HYDROXYZINE)

M. A. Sidell M.D.
Medical Director

ROERIG
New York 17, New York
Division, Chas. Pfizer & Co., Inc.

ATARAX
in any hyperemotive state

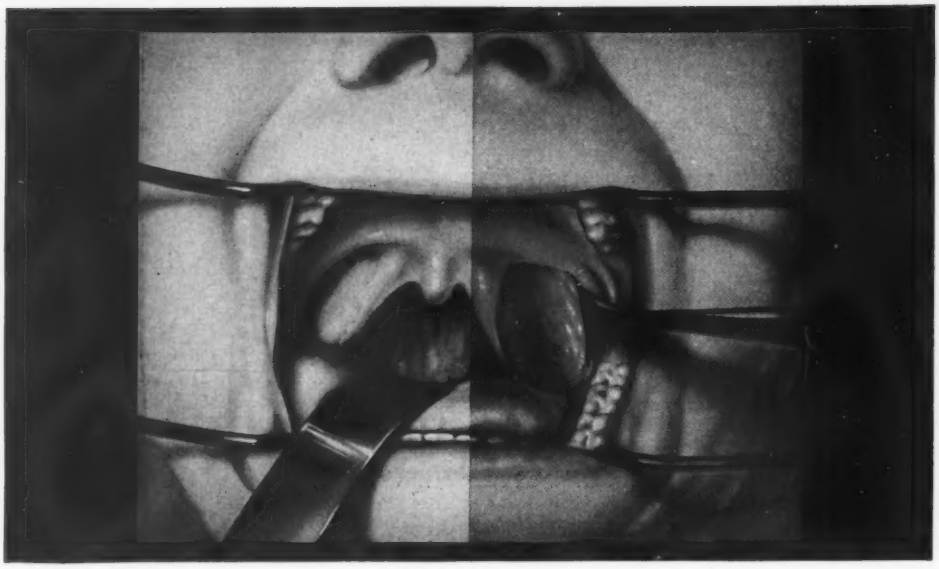
for childhood behavior disorders
10 mg. tablets—3-6 years, one tablet t.i.d.; over 6 years, two tablets t.i.d. Syrup—3-6 years, one tsp. t.i.d.; over 6 years, two tsp. t.i.d.

for adult tension and anxiety
25 mg. tablets—one tablet q.i.d. Syrup—one tbsp. q.i.d.

for severe emotional disturbances
100 mg. tablets—one tablet t.i.d.

for adult psychiatric and emotional emergencies
Parenteral Solution—25-50 mg. (1-2 cc.) intramuscularly, 3-4 times daily, at 4-hour intervals. Dosage for children under 12 not established.

Supplied: Tablets, bottles of 100. Syrup, pint bottles. Parenteral Solution, 10 cc. multiple-dose vials.



Now–

"A BACTERIOSTATIC BATH"*

Controls Oropharyngeal Infections and Relieves Discomfort Quickly

Chewing ORABIOTIC releases a soothing flow of saliva laden with two locally potent and complementary antibiotics—*neomycin and gramicidin*—plus a topical analgesic, *propesin*, which is more effective than benzocaine.

NON-SENSITIZING AND NON-IRRITATING.

ORABIOTIC®

NEW ANTIBIOTIC-ANALGESIC CHEWING TROCHES

for topical treatment or prophylaxis

For the relief of postoperative discomfort and the prevention of secondary hemorrhage following tonsillectomy. Valuable also as a topical adjunct to systemic treatment of bacterial infections of the mouth and throat.

EACH TROCHE CONTAINING: neomycin 3.5 mg., gramicidin 0.25 mg., and propesin 2.0 mg.

IN PACKAGES OF 20. One troche chewed for 10-15 min. q. 4h.

WHITE LABORATORIES, INC., KENILWORTH, N. J.

**Granberry, C., and Beatrous, W. P.: The Effect of an Antibiotic Chewing Troche on Post-Tonsillectomy Morbidity, E. E. N. T. Monthly (May) 1957.*

Now...free of Angina!

On continuing Choledyl therapy, many angina victims are helped toward a more natural, more enjoyable way of life. 200 mg. q.i.d., can decrease the number and severity of attacks...improve the heart's utilization of oxygen . . . reduce the need for nitroglycerin. Choledyl is the theophylline salt of choline — well tolerated orally and easily absorbed. *Nepera Laboratories, Morris Plains, N. J.*

CHOLEDYL®

BRAND OF OXTRIPHYLLINE

to prevent anginal attacks

NEPERA

not only for protection

as the vaginal menstrual guard of choice...

but also for professional use

to retain vaginal and cervical medications after treatment and between office visits.

to protect against seepage after cervical biopsy or cauterization.

to absorb discharges or abnormal secretions.

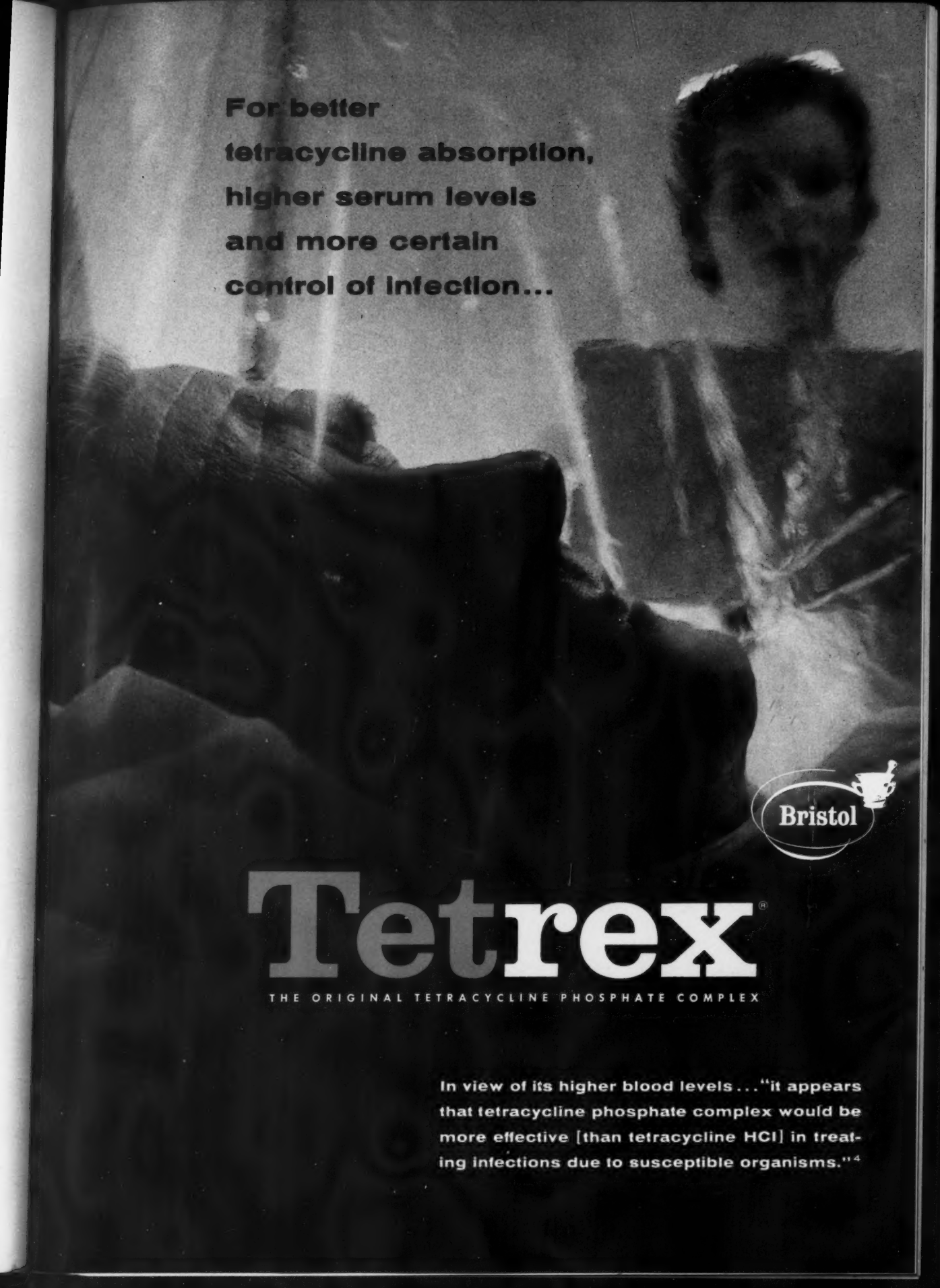
Three Absorbencies—REGULAR, SUPER, JUNIOR—for varying requirements.

Made of pure surgical absorbent cotton — readily available and economical.

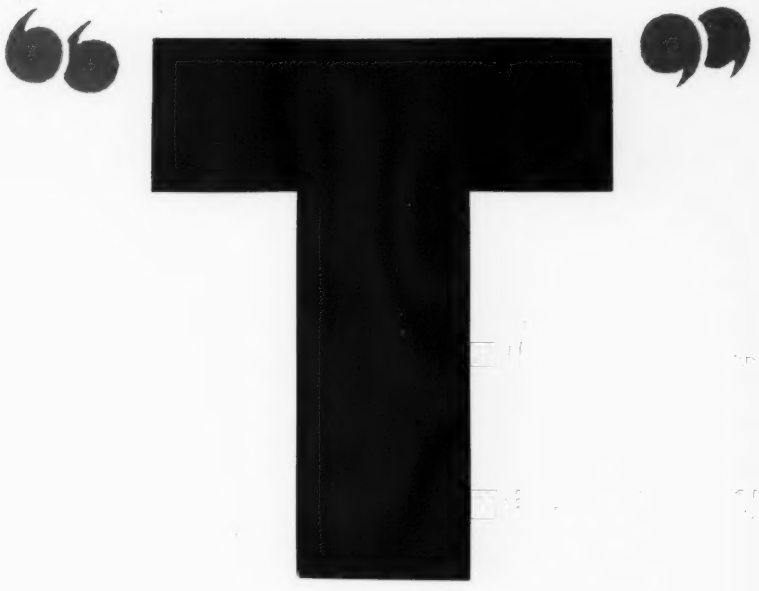
COMFORTABLE • CONVENIENT • SAFE

AOA—38

TAMPAX INCORPORATED • PALMER, MASS.


For better
tetracycline absorption,
higher serum levels
and more certain
control of infection...
Bristol
Tetrex®
THE ORIGINAL TETRACYCLINE PHOSPHATE COMPLEX
In view of its higher blood levels . . . "it appears that tetracycline phosphate complex would be more effective [than tetracycline HCl] in treating infections due to susceptible organisms."[4]

Suits every tetracycline need to a



Typical comments from clinical investigators

"The advantages of higher blood and tissue levels of tetracycline in combating infections with susceptible bacteria are significant."[1]

"All patients with infections caused by tetracycline-sensitive organisms responded satisfactorily to tetracycline phosphate complex therapy."[5]

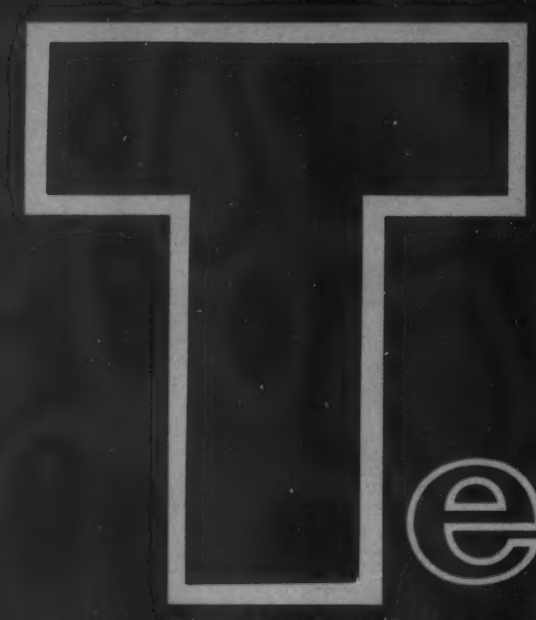
"The increased serum levels obtained with it [tetracycline phosphate complex] may be considered a 'safety factor'."[6]

"It effectively controlled the pyogenic component . . ."[9]

"Side effects were infrequent and mild . . ."[8]

Tetrex®

THE ORIGINAL TETRACYCLINE PHOSPHATE COMPLEX



Tetre

THE ORIGINAL TETRACYCLINE PHOSATE

Faster, higher tetracycline serum levels for more certain control of infection.[1,4,5,7,10,11]

Significant serum levels for 24 hours on a single dose of Tetrex Intramuscular (250 mg.)[2,3]

A single, pure antibiotic (not a mixture.)

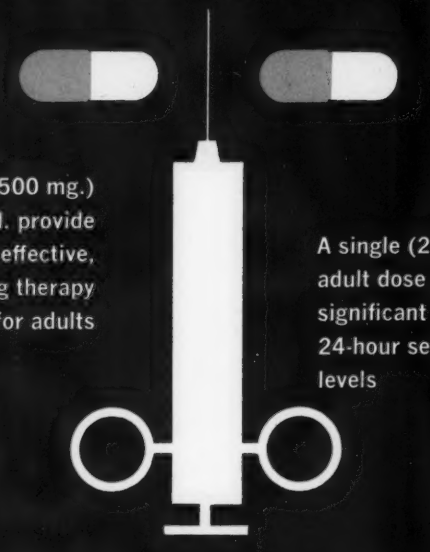
B.i.d. or q.i.d. dosage equally effective orally.[1,6,8,11]

Clinically "sodium-free."[1,6]

A dosage form for every tetracycline need.

References: 1. Cronk, G. A., Naumann, D. E., and Casson, K.: Fifth Annual Symposium on Antibiotics, Washington, D. C., Oct. 2-4, 1957. 2. Dube, A. H.: *Ibid.* 3. Portney, B., Draper, T., and Wehrle, P. F.: *Ibid.* 4. Shidlovsky, B. A., Prigot, A., Maynard, A. de L., Felix, A. J., and Hjelt-Harvey, I.: *Ibid.* 5. Cronk, G. A., and Naumann, D. E.: Ant. Med. & Clin. Ther. 4:166, 1957. 6. Prigot, A., Shidlovsky, B. A., and Felix, A. J.: *Ibid.* 4:487, 1957. 7. Pulaski, E. J., and Isokane, R. K.: *Ibid.* 4:408, 1957. 8. Putnam, L. E.: *Ibid.* 4:470. 1957. 9. Rein, C. R., and Fleischmajer, R.: *Ibid.* 4:422, 1957. 10. Welch, H., Lewis, C. N., Staffa, A. W., and Wright, W. W.: *Ibid.* 4:215, 1957. 11. Pulaski, E. J.: Practitioner 179:465, 1957.

"...an improvement and ultimate replacement for the older tetracycline hydrochloride."[1]



2 capsules (500 mg.) b.i.d. provide safe, effective, time-saving therapy for adults

A single (250-mg.) I.M. adult dose produces significant 24-hour serum levels

(eX

U.S. PAT. NO. 2 791 609

ATE COMPLEX

EFFECTIVE *in a wide variety of* **COMMON INFECTIONS** *including:*

Respiratory tract infections:

pneumonia,
acute bronchitis,
pharyngitis,
sinusitis,
septic sore throat,
whooping cough.

Urinary tract infections:

pyelonephritis,
pyelitis,
cystitis,
prostatitis,
urethritis.

Gastrointestinal infections:

bacillary and amebic dysentery,
bacterial diarrhea,
gastroenteritis.

Dermatologic infections:

cellulitis,
furunculosis,
pustular dermatoses,
acne.

Rickettsial and viral infections:

typhus fever,
Rocky Mountain spotted fever,
trachoma,
lymphogranuloma venereum,
psittacosis.

Prophylaxis in surgery and obstetrics:

preoperative preparation of gastrointestinal tract; deliveries in unsterile fields.

Five groups of investigators who administered TETREX to 996 patients with a wide variety of infections reported excellent therapeutic results, with a remarkably low incidence of side effects.[1,5,6,8,9] As one group reported: "All patients infected with tetracycline-sensitive organisms responded satisfactorily to therapy."[1] In only 8 patients (0.8%) of the 996 were side effects such as to require discontinuance of therapy.

As the need arises — a suitable dosage form: Tetrex Capsules (250 mg.), Tetrex Pediatric Capsules (100 mg.), Tetrex Intramuscular (250 mg.) with Xylocaine*, Tetrex Intramuscular (100 mg.) with Xylocaine*, Tetrex-APC with Bristamin.

Also Available: Tetrex Syrup and Tetrex Pediatric Drops (tetracycline syrup, phosphate buffered.)

*® of Astra Pharm. Prod. Inc. for lidocaine.

Bristol LABORATORIES INC., Syracuse, N. Y.

the new concept

Anergex*

the injectable which inhibits the **allergic response**

A single short course of injections—1 ml. daily for 6-8 days—provides prompt relief which persists for months in most patients, and can be maintained by occasional booster doses.

Anergex therapy suppresses allergic manifestations, *regardless* of the offending allergen, thus eliminating skin tests, special diets, and long drawn-out desensitization procedures.

Over 500 documentated case reports[1,2,3,4] show that Anergex provided marked improvement or complete relief in over 60 per cent.

Anergex is effective in: Seasonal rhinitis (rose fever, hay fever); nonseasonal rhinitis (dust, dander, molds, foods); allergic asthma; asthmatic bronchitis and eczema in children; food sensitivities.

Available: Multiple-dose vials containing 8 ml.—one average treatment course.

literature available

MULFORD COLLOID LABORATORIES
38th & Ludlow Streets, Philadelphia 4, Pennsylvania

1. Clin. Med. 2:1009, 1955.
2. Amer. Pract. & Digest Treat. 9:1447, 1956.
3. Clin. Med. 3:1059, 1956.
4. Unpublished data.

*Reg. U.S. Pat. Off.

PHOSPHO-SODA

prompt action

(FLEET)®

PHOSPHO-SODA

satisfactory results

(FLEET)®

PHOSPHO-SODA

(FLEET)®

Phospho-Soda (Fleet) is recognized as an effective laxative in the treatment of long term constipation or occasional costive distress . . . and as an intestinal cleansing agent prior to examination or surgery. Each 100 cc. contains 48 Gm. Sodium Biphosphate and 16 Gm. Sodium Phosphate.

since 1869 Fleet

C. B. FLEET CO., INC.

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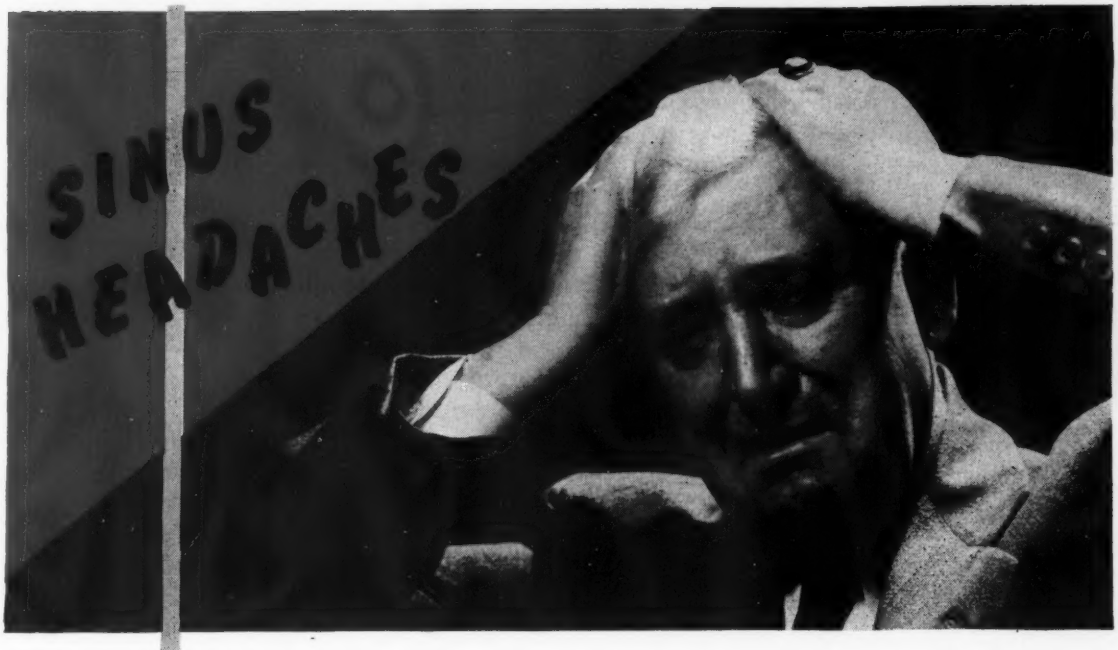
also makers of

FLEET® ENEMA *Disposable Unit*

OIL RETENTION ENEMA (FLEET)®



Agonizing headaches caused by sinus congestion can often be relieved by use of Iodo-Niacin to promote drainage and aeration.

We constantly receive letters from physicians who report excellent results from palliative treatment with Iodo-Niacin.

Iodo-Niacin* tablets contain potassium iodide 135 mg. (2¼ gr.) and niacinamide hydroiodide 25 mg. (⅜ gr.), slosol coated pink. Average dose, 2 tablets three times a day.

Iodo-Niacin is also supplied in ampuls for emergency intramuscular or intravenous use.

Published reports** show that Iodo-Niacin may be administered in full dosage for a year or longer without any hazard of iodism.

IODO-NIACIN*

IODIDE THERAPY WITHOUT IODISM

*U.S. PATENT PENDING

**Am. J. Digest. Dis. 22:5, 1955

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CHEMICAL
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Write for professional samples and literature

Cole Chemical Company AOS-3
3721-27 Laclede Ave., St. Louis 8, Mo.
Gentlemen: Please send me professional literature and samples of IODO-NIACIN.

DOCTOR.....

STREET.....

CITY.....ZONE.....STATE.....

WHEN YOU TREAT INFECTIONS IN PATIENTS SUCH AS THESE

- debilitated
- elderly
- diabetics
- infants, especially prematures
- those on corticoids
- those who developed moniliasis on previous broad-spectrum therapy
- those on prolonged and/or high antibiotic dosage
- women—especially if pregnant or diabetic

the best broad-spectrum antibiotic to use is

MYSTECLIN-V

Squibb Tetracycline Phosphate Complex (Sumycin) and Nystatin (Mycostatin) — Sumycin plus Mycostatin

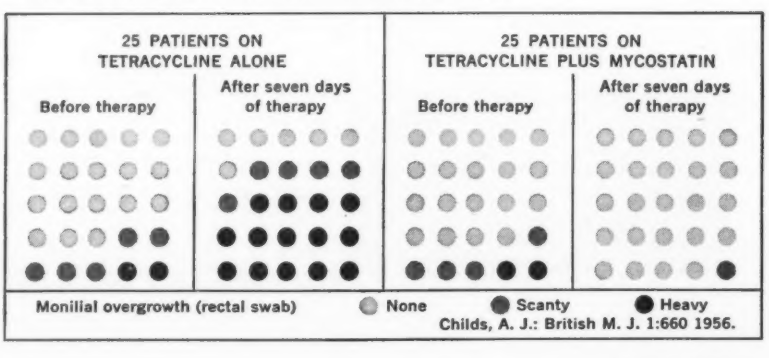
for practical purposes, Mysteclin-V is sodium-free

for "built-in" safety, Mysteclin-V combines:

1. Tetracycline phosphate complex (Sumycin) for superior initial tetracycline blood levels, assuring fast transport of adequate tetracycline to the infection site.

2. Mycostatin—the first safe antifungal antibiotic—for its specific antimonilial activity. Mycostatin protects many patients (see above) who are particularly prone to monilial complications when on broad-spectrum therapy.

MYSTECLIN-V PREVENTS MONILIAL OVERGROWTH



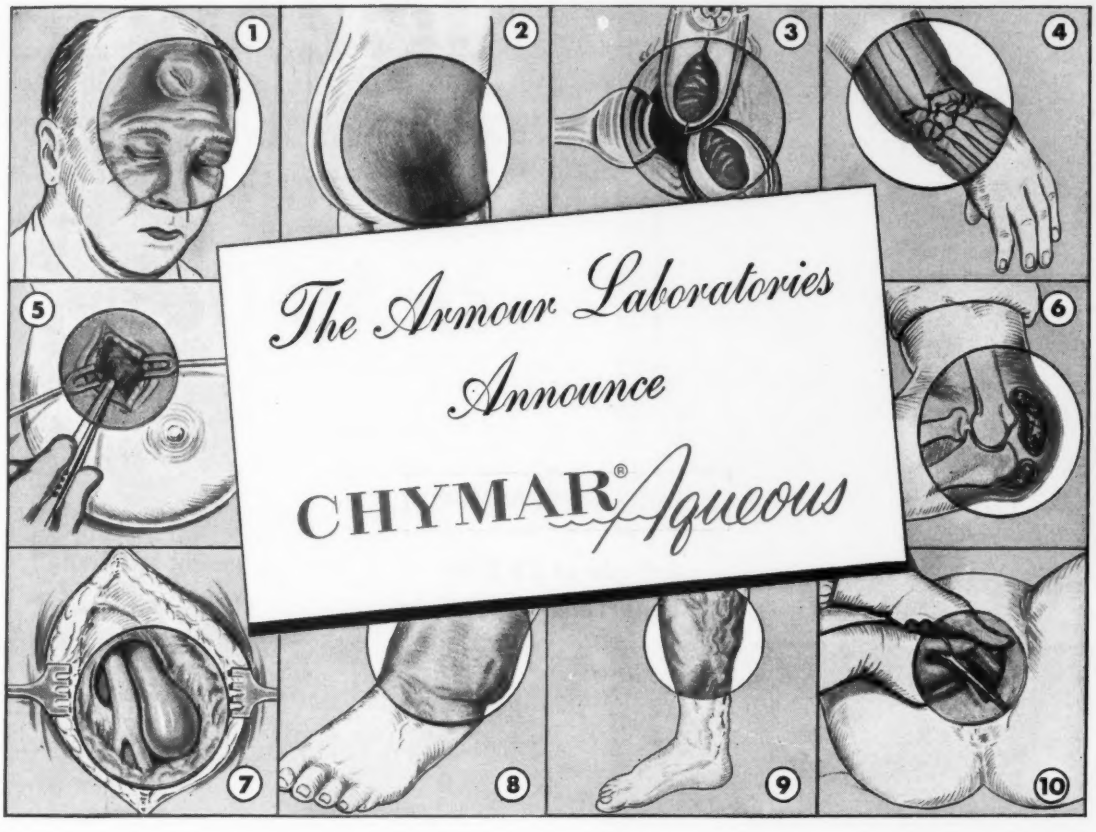
Childs, A. J.: British M. J. 1:660 1956.

Capsules (250 mg./250,000 u.), bottles of 16 and 100. *Half-Strength Capsules* (125 mg./125,000 u.), bottles of 16 and 100. *Suspension* (125 mg./125,000 u.), 2 oz. bottles. *Pediatric Drops* (100 mg./100,000 u.), 10 cc. dropper bottles.

SQUIBB

Squibb Quality—the Priceless Ingredient

'MYSTECLIN,'® 'MYCOSTATIN',® AND 'SUMYCIN' ARE SQUIBB TRADEMARKS



Systemic Anti-inflammatory

For the First Time a Truly Aqueous Solution in a ONE-VIAL Preparation

CHYMAR Aqueous is crystallized chymotrypsin in sodium chloride injection for intramuscular administration.

Uses: As a systemic anti-inflammatory and anti-edematous agent for therapeutic and prophylactic purposes. As an adjunctive with antibiotics in the treatment of infected wounds and in the prophylaxis of lesions prone to infection.

Advantages of CHYMAR Aqueous

The only *one-vial* aqueous solution of this systemic anti-inflammatory agent in pure, crystallized state. Available in a non-allergenic vehicle . . . Painless on injection . . . Injectable to last drop through small-gauge needle because it does not adhere to vial or syringe wall.

Supplied: Crystallized chymotrypsin in sodium chloride injection for intramuscular use. In 5 cc. multiple dose vials. Each cc. contains 5000 Armour Units. *Also available* Chymar in oil in 5 cc. multiple dose vials.

1. Bump on head with laceration **2.** Big bruise of buttocks **3.** Hemorrhoidectomy **4.** Fracture of forearm **5.** Breast biopsy **6.** Bursitis of elbow **7.** Hernia repair **8.** Ankle sprain **9.** Phlebitis **10.** Episiotomy

THE ARMOUR LABORATORIES
A DIVISION OF ARMOUR AND COMPANY • KANKAKEE, ILLINOIS

"PROOF IN PRACTICE"

a study of 12,880 hypertensive patients

No. of Patients	Results	Percent
3,929	excellent	30.5%
6,393	good	49.6%
1,535	fair	11.9%
596	unsatisfactory	4.6%
427	side effects	3.3%

The tabulations at the left are from the recently completed study on cryptenamine (Unitensen) in which 12,880 patients and 1,384 physicians participated. Evaluation of the drug was based on experience in everyday private practice.

A summary of the "proof in practice" study is available upon request from the Medical Director of Irwin, Neisler & Co.

UNITENSEN®

Each Unitensen tablet contains cryptenamine (tannates) 2.0 mg.

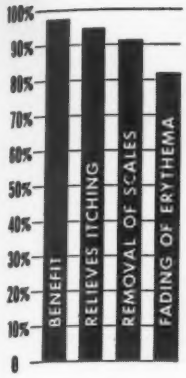
UNITENSEN-R®

Each Unitensen-R tablet contains cryptenamine (tannates) 1.0 mg., Reserpine 0.1mg.

Clinical supplies available upon request.

Neisler

Irwin, Neisler & Co. • Decatur, Illinois



RIASOL FOR RESULTS IN PSORIASIS

As of 1958 RIASOL* has an enequaled record of results in the treatment of psoriasis:

- Benefit in 97% of cases.
- Relief of itching in 94%.
- Removal of scales in 91%.
- Fading of erythema in 82%.
- Adverse effects, none.

UNIQUE FORMULA: Mercury 0.45% is chemically combined with soaps for greater penetration. Phenol 0.5% is antipruritic. Cresol 0.75% removes scales. Patients appreciate the washable, non-staining, odorless vehicle.

USE: Once daily as a thin film applied to the skin patches, after a mild soap bath and thorough drying. Invisible, economical, convenient. No bandages needed. Adjust to patient's progress after one week.

RIASOL is readily available at all pharmacies in 4 and 8 fld. oz. bottles, or it can be supplied direct. Ethically promoted.

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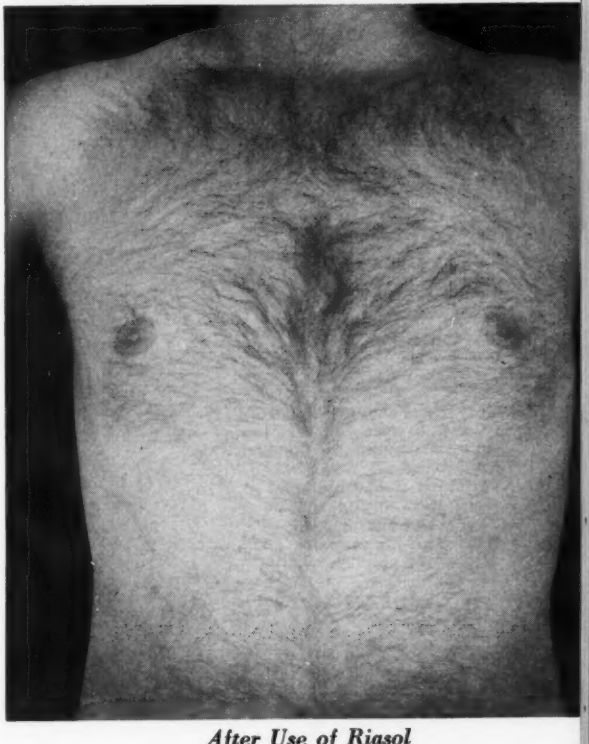

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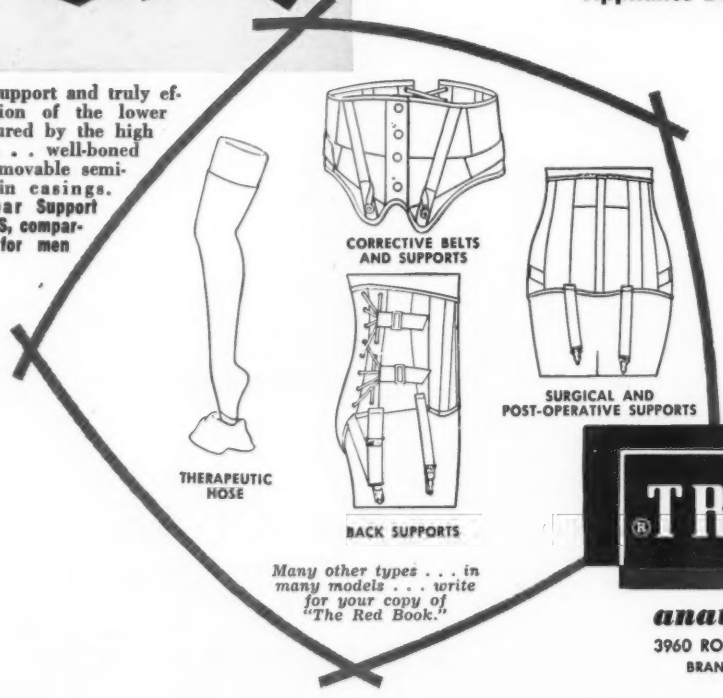

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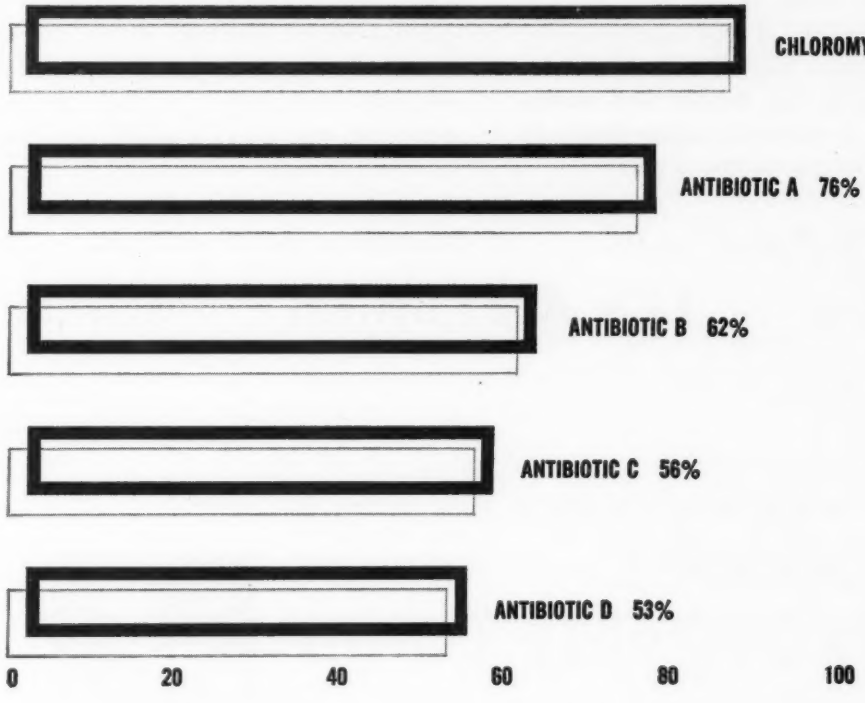

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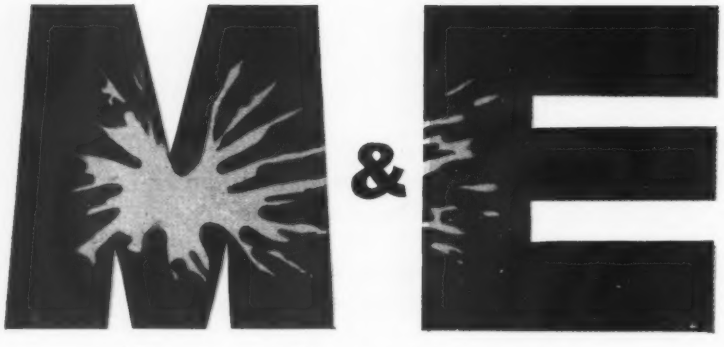

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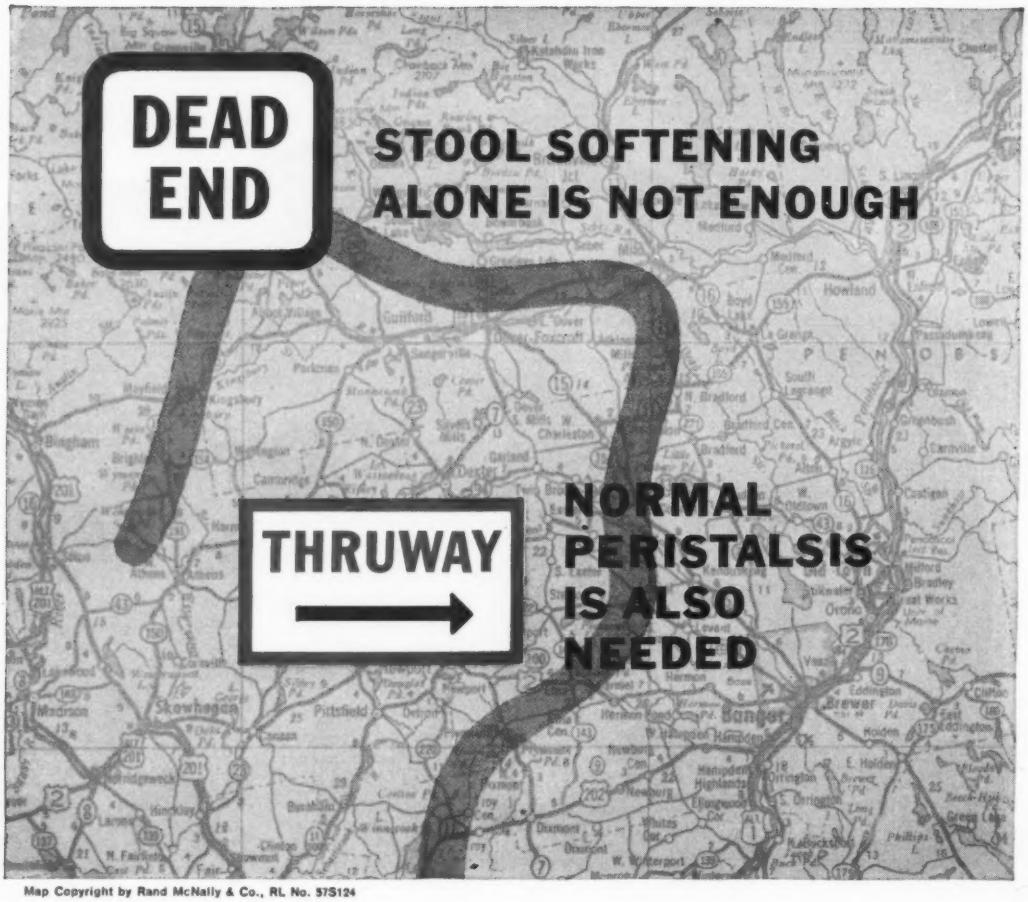

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1. Gellis, S. S., McGuinnes, A. C., and Peters, M.: Am. J. M. Sc. *210*:661, 1956.
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The JOURNAL of the AMERICAN OSTEOPATHIC ASSOCIATION

March 1958 Vol. 57, No. 7

SYMPOSIUM

on physical medicine and rehabilitation*

Moderator
JOHN M. ANDREWS, D.O.†
Los Angeles, California

Speakers
JOHN W. MULFORD, D.O.
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PHILIP RASCH, Ph.D.
Los Angeles, California
JOHN W. A. BRANT, Ph.D.
Los Angeles, California
MARJORIE OLWEN GUTENSOHN, D.O.
Kirksville, Missouri
R. GILBERT DORRANCE, D.O.
Pittsburgh, Pennsylvania

DR. ANDREWS: On August 3, 1954, President Eisenhower signed into law the Medical Facilities Survey and Construction Act of 1954, which concerned vocational rehabilitation. The President felt that this law was especially noteworthy for two reasons and I wish to quote him: "In the first place it reemphasizes to all the world the great value which we in America place upon the dignity and worth of each individual human being. Second, it is a humanitarian investment of great importance, yet it saves large sums of money for both Federal and State Governments." In this program of rehabilitation, physical medicine must also be included to make it complete.

The practice of physical medicine has developed during recent years because of the changing needs of patients. Improved treatment for acute diseases has increased life expectancy from 47.3 years in 1900 to 69.5 years today. However, the first responsibility of the physician is not only to add years to life but to make those years profitable and enjoyable to the individual. As a result of the increasing length of life, study of chronic diseases has become increasingly important. Research programs are under way to find the causes of such disabling conditions as cerebral palsy, muscular dystrophy, carcinoma, myasthenia gravis, poliomyelitis, and many others. More attention is being focused on overindulgence in tobacco, alcohol, and food.

While the laboratory scientist becomes concerned with investigations into the cause of disease, physical medicine is concerned with the application of biophysics to medical practice, and with the use of physical modalities to arrest disease processes or to enable a patient to improve his physical condition. Physical medicine includes treatment by such physical modalities as heat, light, electricity, sound, water, and manipulation. Manipulative treatment may consist of exercise, which may be active or passive, assistive or resistive. It also may mean specific manipulative procedures which are designed to normalize structural relationships. Osteopathic physicians have particular interest in manipulative therapy, since experience has shown it to be important in treatment of certain conditions.

The total program of rehabilitation, on the other hand, includes evaluation of the capabilities of the handicapped or disabled individual, and helping him to do all he can as well as he can for as long as he can. This involves restoration of the patient—not part of the body but the entire person—to the fullest physical, mental, social, vocational, and economic activity of which he is capable.

A treatment program of this nature must be developed from the integrated cooperation of a variety of specialists working with unselfish devotion in the interest of the diseased and the handicapped. Such a program brings together as a team special personnel from the medical, psychologic, social, and vocational areas; these specialists pool information for interpretations and opinions, and develop a rehabilitation plan which takes into consideration the disabled individual as a whole. Members of a team may contribute to diagnosis and treatment of illness, but their contributions must be coordinated under medical responsibility.

If such service is all provided under one roof, the facilities are known as a rehabilitation center. This center is operated for the primary purpose of assisting in the rehabilitation of disabled persons through an integrated program of medical, psychologic, social, and vocational evaluation and services under competent professional supervision.

The services of a rehabilitation center, in varying combinations, fall into several categories: (1) Evaluation of the patient: medical, psychologic, social, economic, educational, and vocational; (2) medical services: medical supervision, physical and occupational therapy, medically directed recreation therapy, and special therapy; (3) psychologic services: testing, restraining of the brain-injured patient, and counseling the entire family when necessary; (4) social and economic services, including nonmedically directed recreation; (5) educational services: testing and counseling, general education, and prevocational education; (6) vocational services: testing, counseling, training which is prevocational, vocational, or on the job, and placement; (7) follow-up of the patient; and (8) research and special studies.

From this outline it is evident that the personnel of the rehabilitation center will vary according to the services offered at the institution. Aside from physicians, a rehabilitation center will probably include physical therapists, prosthesis technicians, occupational therapists, social workers, psychologists, vocational counselors, speech therapists, and so on. There may also be research assistants and representatives of various

*Presented at the Sixty-First Annual Convention of the American Osteopathic Association, Dallas, Texas, July 18, 1957.

†Dr. Andrews is Professor and Executive of the Department of Physical Medicine and Rehabilitation and Director of the Rehabilitation Center, College of Osteopathic Physicians and Surgeons, Los Angeles.

community organizations involved in the care and welfare of handicapped people.

In various phases of his care, the patient may be under the direct supervision of one or more members of this team. The emphasis during care may be on the medical treatment, physical therapy, social case work, occupational therapy, or evaluation for future employment. Unity in the entire program is achieved through constant supervision by the physician. At frequent staff meetings various portions of patient care may be discussed by those in charge of that phase.

Integration of services within the center is vital if the patient is to receive full benefit from a rehabilitation program. There must be administrative planning to help the members of the team or staff learn to work together in a democratic atmosphere. It is well recognized that communication is the key to integration. A free exchange of information between staff members and between the staff and patients is necessary to acquaint patients with services available and to keep the staff informed of the work of all departments. The most effective work results from the opportunity for each staff member to work at his minimum professional level. This is possible only when each staff member is familiar with the training, experience, and responsibilities of each of the other members of the rehabilitation team.

The team approach to the care of the handicapped stresses the conviction that service to the patient is the primary consideration, but the patient must have the proper motivation if rehabilitation is to be successful. I recall a statement made to me by a patient who had had a cerebrovascular accident, and had been under care for several months. According to my examination she was much improved but this was not manifested clinically. When I asked her why, she leaned over and whispered, "Dr. Andrews, this is the first time in my life I have had this much attention, and I'm not going to give it up." The motivation of the patient is important.

I want to stress again that in order to provide the complete services listed earlier, it is absolutely necessary to have a team. In the case of a patient with a cerebrovascular accident, for example, the services of several consultants, such as cardiologists and neurologists, may be necessary. The next step is to discover the prospects for that individual to get well. If recovery will be incomplete, it may be necessary to investigate his educational or employment background to discover his potential for retraining in some other type of work. With this information, he can be treated so that he will still have a place in society and a job to earn a living.

The participants in this symposium represent a team of persons trained in different phases of patient care in rehabilitation, and I am privileged to introduce them to you. The first is Dr. John W. Mulford, a former President of the American Osteopathic Association who served as chairman of the Department of Professional Affairs in 1952-53.

The total program of rehabilitation includes evaluation of the capabilities of the handicapped or disabled individual and helping him to do all he can as well as he can for as long as he can

Relationship between physical medicine and rehabilitation and the osteopathic profession

DR. MULFORD: The term "physical medicine" can be used in a narrow sense or in a broad one. First, let us examine the definition of "physical medicine" as it is outlined in one of the standard medical dictionaries. There it is said to be "the employment of physical means in the diagnosis and treatment of disease. It includes the use of heat, cold water, light, electricity, *manipulation*, massage, exercise and mechanical devices." Although this definition is not as limited as such older terms as "physiotherapy" and "physical therapy," it is my impression that "physical medicine" as we are using it in this panel discussion implies much more than the definition I just quoted. The definition is a description of the technics employed in physical medicine, but no more. Refusing to be limited by this definition, physical medicine has begun to come into its own. And I am not thinking of physical medicine as a specialty, but as a descriptive term.

Those of you interested in the history of medicine know that physical agents were the modalities first used by primitive man in the treatment of his ills. Combined with magic, heat, cold, water, light (sun), and some form of manipulation were the only means by which the medicine man could combat disease. Even when physicians appeared on the scene, it is amazing how crude their therapies were—long after they knew a great deal about disease symptoms. For instance, many people still living are aware from their own experience of the general ineffectiveness of most drug treatment during our formative days as a profession. We all know that it was medical failures that challenged Dr. Still as a physician to do something about the situation.

We know that medical practice before World War I consisted largely in giving mixtures of medicines that were designed to relieve the patient's symptoms. It took a strong man in those days to survive the treatment he received. Naturally enough, the drugs used were directed to the spots in the body that were assumed to be in trouble. The theory was simple: relieve the symptom and you have cured the trouble.

We know that the Old Doctor viewed the body as a machine—if one part got out of order, the whole could be affected. Some such basic thinking as this must have brought to Dr. Still the idea that the doctor should find out *what* was wrong with a person and then fix it, and the whole body would be better. He believed if something was wrong with the anatomic structure of

the body then it could not function properly. Logically, therefore, he set about finding out how to correct abnormal structure. He also was convinced that the body was able to manufacture most of the remedies that it needed if it were structurally sound. Today we are apt to forget that then such teaching was revolutionary. Upon the basis of these conclusions, the Founder of the osteopathic profession returned to one of the oldest agents to be employed in the treatment of disease—manipulation. For the first time, however, aside from manipulation used to correct gross abnormalities such as dislocations and fractures, manipulative technics were evolved and selected to correct subtle structural abnormalities that could be exerting disturbing influences on remote parts of the body.

We have given these disturbances various names: "spinal lesions," "spinal strains," "osteopathic lesions," "vertebral lesions," and "Still lesions." These names in themselves have caused a good deal of misunderstanding about osteopathy as a school of practice and continue to cause misunderstanding. Modern scientists are inclined to term them "musculoskeletal" abnormalities or lesions, using words that are defined in a dictionary. The term "musculoskeletal," anyone can understand—doctor of medicine, scientists, or informed laymen. Redefined in ordinary words, osteopathic manipulative treatment of these abnormalities means employment of manipulation—one of the oldest forms of physical medicine. Its application osteopathically indicates a degree of technical skill evolved by Dr. Still and quite unknown before its development by him. Prior to Still, no attention had been paid to the possibility that interferences with the normal functioning of spinal articulations could have an adverse effect upon the body and their correction be remedial in its effect.

As a profession, we now know that our knowledge of musculoskeletal lesions has been largely empirical, as has been their treatment by manipulative procedures. One thing is certain—treatment of these abnormalities, when classified historically, is one form of physical medicine.

If this seems a simple explanation of a complex subject, it is exactly that. Such an explanation, however, has meaning. It can be understood by those not acquainted with our special language. The explanation does not limit our profession in any way and it classifies manipulation as it should be classified—as one of the valuable technics of therapy that must be used by all wise and skilled physicians if they are to render the highest grade of health service to their patients.

This panel is in itself simple acknowledgment that osteopathic manipulative therapy fundamentally is a type of physical medicine. In all fairness, we can claim as a profession to have brought manipulation out into the light of day and developed it to the point that it is a genuine agent in the treatment of sick people. In that respect, our therapeutic contribution has been like the contribution of pharmacology to drug treatment. I think of pharmacology related to medicine as an over-all modern concept, including far more than the art of pharmacy. I believe that the time has come, if we wish to get ourselves understood in the medically scientific world, to think of musculoskeletal lesions and their treatment as a broad phase of physical medicine, generally that in itself cuts across the entire field of medicine. And again I am not talking about a specialty. Physical medicine, however, conceived in this sense, needs fundamental exploration, just as we know that osteopathy needs a redefinition and restatement of its purpose—and that, too, will take exploration.

It is gratifying that calls are being made all along the line for such studies. I refer you to a report published in the September 1956 issue of *The British Journal of Physical Medicine.*

. . . The osteopathic view that structure governs function within the body may not be always true but it happens sufficiently often to make us think on mechanical lines more and more. The lead has been set and the facts are accumulating. That mechanical faults in the spine cause peripheral nerve lesions is now common knowledge. There is only one more step needed in the osteopathic direction before it is realized that visceral dysfunction and even disease arises from mechanical causes. There is much osteopathic literature available particularly in the United States of America—work done dispassionately and scientifically, and it is a pity that more attention is not paid to their viewpoint, but unquestionably physical medicine is veering that way. At present the osteopathic approach is a separate one, somewhat divorced from medical practice. This is unfortunate both for medicine and for the public, but until the general principle that "structure governs function" is accepted by medicine and physical medicine, there will still be a need for a separate school of thought.‡

We do not often find the osteopathic profession referred to in medical journals in such sympathetic language. This is gratifying, but it is a minor point. The significance of such a statement as this is that it reflects understanding of osteopathy upon the part of authentic persons in the profession of medicine. At the same time, it indicates that the relationship between physical medicine and the osteopathic approach is understood clearly by the writer.

Before going further, I believe we should ask ourselves: What is the relationship of rehabilitation to the osteopathic profession? Again, it seems to me that that can be best understood through a definition of rehabilitation. One definition calls it a restoration of a handicapped individual (and this includes any type of chronic invalid for any cause) to the fullest physical, mental, social, educational, and economic usefulness of which he or she is capable. Such a definition accords with the thinking of authorities in the field who have stated that rehabilitation is not so much a branch of the healing art or a system of treatment as it is a philosophy. This is a point of view about medical problems that has been part and parcel of the osteopathic approach to health and disease from its earliest beginnings.

If we are to be credited with early recognition of the importance of such a philosophy, it should be admitted that we have been remiss in putting our thinking into practice. We have too long neglected to practice our preaching and to develop technics to carry it out. The least we can do now is to lend our unqualified support to our friends. We find ourselves indebted to the few pioneers in the medical profession who have originated the modern technics of rehabilitation and are applying them in the very few centers in the United States that are equipped with personnel and facilities to put rehabilitation to work.

Many believe that we can now say in truth that the profession of osteopathy is prepared to understand physical medicine and rehabilitation in its broadest terms. We now stand ready to co-operate in every way with its growth and development as one of the most significant areas of the healing art professions. Further, we believe that both in physical medicine and in rehabilitation, the osteopathic profession has a common denominator with one sector of the profession of medicine. Unfortunately, physical medicine and rehabilitation as forms of general treatment, as are drugs, are un-

‡From report reprinted by permission of the editor of *The British Journal of Physical Medicine* in the October JOURNAL, page 157.

known to medical practice. As a specialty, P. M. and R. is an almost unacknowledged child.

It begins to be self-evident that osteopathy as an unlimited healing art agency, and physical medicine and rehabilitation as agents within the technologic, philosophic, and scientific aspect of medicine have a close relationship. If that relationship is clearly seen and acknowledged, it would be possible for the osteopathic profession to get itself better understood and aided in its attempt to render a more comprehensive health care to the people of this nation.

As a profession, we are on record as declaring that complete health care of our proportion of the nation's people is our primary obligation. The profession of medicine has also stated that to be its purpose. Such a situation demands better relations between the two organized professions if they are not to interfere with their avowed purposes. Whether their respective agencies—the American Medical Association and the American Osteopathic Association—want it so or not really will not matter. What does matter is what the American public wants and has had a habit of getting in the long run. Today it wants and demands the best possible health care.

DR. ANDREWS: Our next speaker is Philip Rasch, B.A., M.A., M.Ed., Ph.D. He is Assistant Professor of Physical Medicine and Rehabilitation and Director of the Biokinetics Research Laboratory, at the College of Osteopathic Physicians and Surgeons.

The role of corrective therapy in a neuropsychiatric hospital

DR. RASCH: During the frightful air raids of World War II, the physicians of Great Britain found themselves confronted with a patient load which they were in danger of being unable to handle. Physical injuries and psychologic traumata threatened to fill the hospitals beyond their capacity. The already serious manpower shortage was being made even more acute by the loss of disabled individuals from the production lines and by the necessity of withdrawing still other workers to care for these casualties. Perhaps more in despair than in hope, physicians called upon the British physical educators for assistance in rehabilitating the injured.

So encouraging was their response that on April 15, 1943, under the sponsorship of Col. Frank Stinchfield, of the American Army, a school for physical reconditioning instructors was opened at the 307th Station Hospital, Coventry, England. During 1943 and 1944, Army schools for physical reconditioning instructors were established in the United States. Officers were trained at Washington and Lee University in Virginia and enlisted men at Camp Grant, Illinois. Following the war, a reconditioning program was adopted by the Veterans Administration, and many of these service-trained personnel were absorbed into that facility. From the Veterans Administration such programs spread into progressive state and private hospitals and rehabilitation centers to become integral parts of the Departments of Physical Medicine and Rehabilitation.

Corrective therapy has been officially defined by the Association for Physical and Mental Rehabilitation as "the application of the principles, tools, techniques and psychology of medically oriented physical education to assist the physician in the accomplishment of prescribed objectives." Candidates for examination by the American Board of Certification of Corrective Therapists are required to have completed a 4-year college curriculum leading to the baccalaureate degree, including courses in prescribed areas, and must have completed a minimum of 250 hours of clinical internship in medically supervised physical education under the sponsorship of a recognized college or university. Such experience must be under the supervision of a physician and a certified corrective therapist.

While corrective therapists are employed in general medical and surgical hospitals as well as neuropsychiatric hospitals, this paper will be confined to the latter. In any hospital the corrective therapist is a member of a team headed by a physician who is a specialist in physical medicine. His teammates may consist of physical therapists, occupational therapists, educational therapists, and perhaps others. When assigned to work with a psychiatrist, corrective therapists become part of a larger team which may also include social service workers, nurses, aides, and other individuals not directly connected with physical medicine. Although this paper presents only the role of the corrective therapist, this is not to be construed as in any way deprecating the contributions rendered by other members of these teams. If corrective therapy is emphasized to the exclusion of other forms of therapy, it is only because limitations of time, space and knowledge make it necessary to confine this article to that aspect with which the author is best acquainted.

All members of Departments of Physical Medicine and Rehabilitation have a common goal: the restoration of the patient to a useful role in society. The principal tool of the corrective therapist in achieving this goal is therapeutic exercise. As Crowell[1] commented, exercise cannot change peoples' drives, but it can channel them into activities that aid human beings in solving some of their problems. The problems of mental patients are very similar to those of non-patients, only aggravated beyond their powers to cope with them. Even aggression and hostility are but facades, behind which are needs to establish friendly relations and achieve group acceptance. It is the therapist's duty to aid in stimulating the patient to desire to rehabilitate himself and then to assist in guiding and supervising him through the stages leading to this goal. The desire for rehabilitation must originate from within the patient; no one can give it to him.

The corrective therapist is largely concerned with three aspects of treatment:

1. The utilization of activity for specific therapeutic purposes. This is education through the physical, not education of the physical. Exercises have a distinct effectiveness in meeting the emotional needs of the patient, but only insofar as the therapist is able to employ exercise as a means of creating activity situations which will attract the patient into improved social adjustment.[2] Thus, the major interest is never the activity, but rather its integration into a total situation in which the patient is ready to accept a higher level of socialization. As the patient's socialization increases, he tends to modify his autistic behavior and to break through the barriers which bar him from his fellows.

2. The development of therapeutic interrelationships between therapist and patient. It is a general opinion that the success of therapy is contingent upon the ability of the therapist to establish a therapeutic relationship with the patient as much as upon the therapy itself.[3] Probably the most important aspect of therapy is that of giving the patient a sense of security, a feeling that he is accepted as a valued member of society on

the basis of his own worth. The patient must be brought to realize that a disablement exists but that he must accept and overcome the realities of the situation. This does not imply that the corrective therapist should attempt counseling and guidance except on a superficial level. Rather, verbalizations and actions of the patient should be reported to the psychiatrist in order to assist him in his work. He will then instruct the therapist as to the manner in which he wishes such information to be used.

3. The understanding of the dynamic processes of motor activity. The therapist must attempt to comprehend what the patient is trying to communicate by his motor behavior. Van Den Berg[4] stated that every human motion is a function determined by a sphere of values which furnishes significance to a movement and makes it meaningful; that the theory of movement consists of the interaction between a man's inner self and the world. There is no natural language of bodily expression. Different patients may express the same feeling in different ways, or may utilize the same movement to express different emotions. Many of the actions displayed may be related to cultural or social backgrounds.[5]

Originally, patients were classified according to the diagnoses of their illnesses. Such a classification was not particularly meaningful from the standpoint of therapy, however, and the present tendency is to classify patients on the basis of motor behavior. At one Veterans Administration hospital, the psychiatrists recognize four categories of mental patients: (1) Confused and disorganized; (2) withdrawn, fearful, (3) active, demanding, and unpredictable; and (4) needing prevocational and socialization training.

The treatment of these patients has both symptomatic and creative aspects. After considering all factors involved, the psychiatrist and his team decide on the treatment which they believe will best meet the patient's needs. The goals which may be achieved by symptomatic treatment have been divided by W. C. Menninger into five categories:

1. Narcissistic gratification. This is the patient who has nothing to satisfy his need for ego gratification. He needs to have his psyche built up to help him view himself with respect. In such a case the therapist is likely to help him develop big muscles which give him strength beyond that of the average person and help him to feel that he is "somebody." The corrective therapist may assist the patient in achieving this goal by the use of barbells or other body-building exercises, while he himself maintains an encouraging, admiring attitude.

2. Relief of guilt feelings. This is the patient who needs to be punished. His need is met by giving him dull, monotonous work and taking a very severe and critical attitude toward him while he is executing that routine. This goal may be accomplished by use of a rowing machine or other monotonous activity, with the therapist assuming the role of a stern taskmaster.

3. Acceptable expression of aggression. Many patients have a need to express themselves by hitting somebody; the most logical outlet for that is the punching bag or tether ball, with the corrective therapist encouraging the patient to hit it hard. Frequently patients sketch upon the bag the faces of persons whom they especially dislike (their wives or psychiatrists, for example), or they may call the bag by the names of such persons. Patients will pound this heavy bag until they are in a state of semi-exhaustion.

4. Activity interest. This is for the patient who tends to sit by himself and do nothing. He needs to be in a situation where there is team play, where he receives encouragement from those around him and gives encouragement in return. This goal may be achieved by patient participation in volley ball or other team games, during which the therapist stresses team play and mutual encouragement.

Only rarely does the psychiatrist specify the particular activity to be employed in treatment although he often specifies the attitude to be displayed by the therapist during activity

5. New skills. New skills are generally taught to the patient who is about to leave the hospital, primarily for the purpose of giving him some social activity he can continue after he leaves the hospital. The therapist may teach such skills as badminton, swimming, or other social games. It can be shown that the man who leaves the hospital and spends his time sitting in a rented room is very likely to come back to the hospital. On the other hand, the man who joins the Y.M.C.A. or some similar group is far less likely to have a recurrence or breakdown.

Only rarely does the psychiatrist specify the particular activity to be employed in treatment although he often specifies the attitude to be displayed by the therapist during activity. It is the duty of the therapist to coordinate his efforts and attitudes in such a way as to establish the milieu deemed most favorable for the patient's recovery. Thus, the corrective therapist may employ hydrogymnastics for sedation of the hyperactive patient, for the achievement of patient interaction, or as a means of affording a recreational activity. In each instance the activity is the same, but the manner in which it is employed and the reason for which it is prescribed are different.

In the creative aspect of treatment, the corrective therapist emphasizes the establishment of group interaction and interpersonal relationships. These patients often display a complete lack of socialization, so that eight or ten patients may be together in a room for months at a time and still will not even know each other's names. A therapeutic feeling is built up between the two patients as well as between the patients and the therapist, so that each patient aids in the rehabilitation of others and in so doing he aids himself. The therapist may start by working with a single patient, who, as he improves, may be paired or "paralleled" with another patient so that an individual never works alone. This provides an opportunity for the patient to relate himself to others and to encourage him to express his feelings in order that he may be understood.

The therapist attempts to utilize all spontaneous

play tendencies or play reactions in such a way that they will aid the patient and put him in touch with reality through participation in planned activities, rather than to leaving him to his solitary confused cogitations. In properly developed situations a coach-player relationship is established, and the patient becomes amenable to direction to a degree which he would not tolerate in more serious activities.

The principal tasks of the corrective therapist are: (1) To accept the patient's behavior; (2) to understand what he is trying to communicate by his motor activities; and (3) to utilize this knowledge to help the patient rehabilitate himself. Only when the patient is comfortable with the therapist will he permit the "well part" of his personality to emerge; only when the therapist is comfortable with the patient will he feel sufficiently secure to encourage such emergence and the testing which accompanies it.

Corrective therapists have had particularly successful results in the treatment of disturbed patients. In one large Veterans Administration neuropsychiatric hospital, provision for motor activity under the supervision of the corrective therapists resulted in a reduction of 67 per cent in the number of tubs and packs required.[5] In a similar hospital hydrotherapeutic sedation was given 500 times over a period of 2 months. During the next 2-month period and after corrective therapy was instituted, the number of such treatments for the same group of patients dropped to 193, 39.4 per cent of which was given on Sundays or other days when corrective therapists were not on duty.[6] In another hospital 25 disturbed male psychotic patients received 831 treatments by chemical or hydrotherapeutic sedation or seclusion or other types of control during a 3-month period. Only 523 combined treatments of this type were given over a second 3-month period after corrective therapy with hydrogymnastics was initiated.[7] In some hospitals the use of pack rooms has been abandoned and ward patients who become hyperactive are referred to corrective therapists for hydrogymnastics in a pool, the temperature of which is maintained at 92 F.

With the widespread use of ataractic drugs, conditions have changed somewhat. Generally speaking, these drugs exert a selective suppressive effect on the central nervous system, thereby reducing mobility and promoting muscular relaxation; many patients become more amenable to psychotherapy after treatment with ataractic drugs. While it is more difficult to persuade them to take part in therapeutic exercises, this is offset to some extent by greater ease in establishing interpersonal relationships.

Dealing with patients who have withdrawn from nearly all forms of activity is not uncommon in the experience of the corrective therapist. The most noteworthy characteristic of the motor behavior in catatonic schizophrenics is their lack of external response to stimuli. They show a common lack of ability to perform the simplest skilled acts and an inability to relax normally. The highly successful Roland Relaxation Response Technique is initiated by placing the patient prone on a plinth and obtaining relaxation by passive exercise and suggestion. Relaxation of the mouth and larynx is particularly desirable. When relaxation has been achieved, the therapist encourages the patient to start talking. From talking, he progresses to simple writing, and then to a very simple physical exercises. When the patient is able to write simple letters and to participate in simple physical activities, therapy of a more active form is prescribed. In one hospital in which 87 patients were treated by this technic over a period of 2 years, only 9 failed to improve, and most of these were mentally deficient. Fourteen of the group improved sufficiently to permit them to return to their homes.[8]

Corrective therapy should be prescribed on an individual basis for patients who have had post-lobotomies. They are usually inert, untidy, and indifferent, and the first step for the therapist is to arouse their interest in something. Usually a very simple activity, such as playing catch with a large ball, is the opening gambit. As recovery progresses, these patients are likely to pass through an aggressive phase, during which the corrective therapist should alter the activity so as to provide an acceptable outlet for this form of behavior.

Corrective therapists in neuropsychiatric hospitals have observed an increasing percentage of geriatric cases in their patient load. In part, this results from the fact that the age level of our veteran population rises as the time interval since World War II increases. In part, it is concomitant with the general rise in the age level of the American population and the fact that our habits of metropolitan living render it extremely difficult for children to make suitable provision for their aged parents. The basic difficulty stems from the fact that changes in our social organization have not kept pace with changes in the biologic organization of our population.

Because many aged persons realize that they are unwanted or there is no suitable place for them to go, they do not wish to leave the hospital. Usually some form of light exercise emphasizing coordination and mobility is given to such patients in order to maintain their physical condition so that they can continue to perform the routine tasks of daily living. These individuals are slow to learn new skills and perform poorly in activities requiring speed of movement. Shuffleboard is especially popular with the men in this age group. To the observer, the most striking fact about such patients is the almost complete lack of socialization between individuals. Left to themselves, four patients may play shuffleboard for hours and exchange scarcely a word during that time. All indications are that the geriatric problem will become increasingly important during the next few decades.

In any hospital, personnel in the Department of Physical Medicine and Rehabilitation are confronted with a number of more or less routine problems in aiding the patient to overcome his infirmities. These may relate to strengthening weak muscles, preventing the undesirable effects of bed rest, assisting the neurologic casualty to regain control of his body, educating the amputee in the body mechanics most effective for his new status, or otherwise aiding in the rehabilitation process. With the single exception that it is much more difficult to secure the cooperation of neuropsychiatric patients, this phase of the work of a corrective therapist in a mental institution does not differ from that of his fellows in other types of hospitals. For this reason it has not been discussed in this paper.

In conclusion, it may be emphasized that therapeutic exercise is not a "cure all" in a neuropsychiatric hospital. If properly administered by competent personnel it can do much to relieve the patient's internal tensions and make it possible for him to reach an inner homeostasis which assists in his adjustment to the stresses imposed by his environment. It may also contribute substantially to the improvement of certain physical ailments which the patient may have in addition to his mental difficulties. It is the role of the corrective therapist in a neuropsychiatric hospital to make

the best possible use of the potential benefits of therapeutic exercise to aid in the rehabilitation of those who have broken psychically or physically under the stresses of life.

DR. ANDREWS: Our next speaker is John W. A. Brant, Ph.D., Research Associate, Department of Physiology, College of Osteopathic Physicians and Surgeons, Los Angeles, and Director, Metabolic Laboratory, Research Center.§

Quantitative mensuration and objective evaluation of human cardiorespiratory function

DR. BRANT: In our laboratory we are concerned with the design and content of experimental work to collect and analyze measurement data. The medical interpretation of the experimental material and the application of this knowledge is left to the physicians; thus, my contribution and point of view are that of a research physiologist.

In recent years, development of specific physical apparatus and methods[9,10] has enabled the researcher to observe simultaneously and continuously critical physiologic phenomena in man. Simultaneous and continuous monitoring of pulmonary and cardiac functions in man during normal conditions of life, rest, exercise or work, and recovery from exercise or work, has received much attention here in America[11] as well as in Europe.[12]

The laboratory methods involved here, then, are the product of contemporary researchers. Special credit is given to Bruce and his colleagues,[13-17] whose brilliant application of empirical specific physical apparatus and methods has inspired us to provide, with modifications consistent with our experience and research aims, a laboratory and methods for the purpose of quantitatively measuring and objectively evaluating human cardiorespiratory function (Fig. 1).

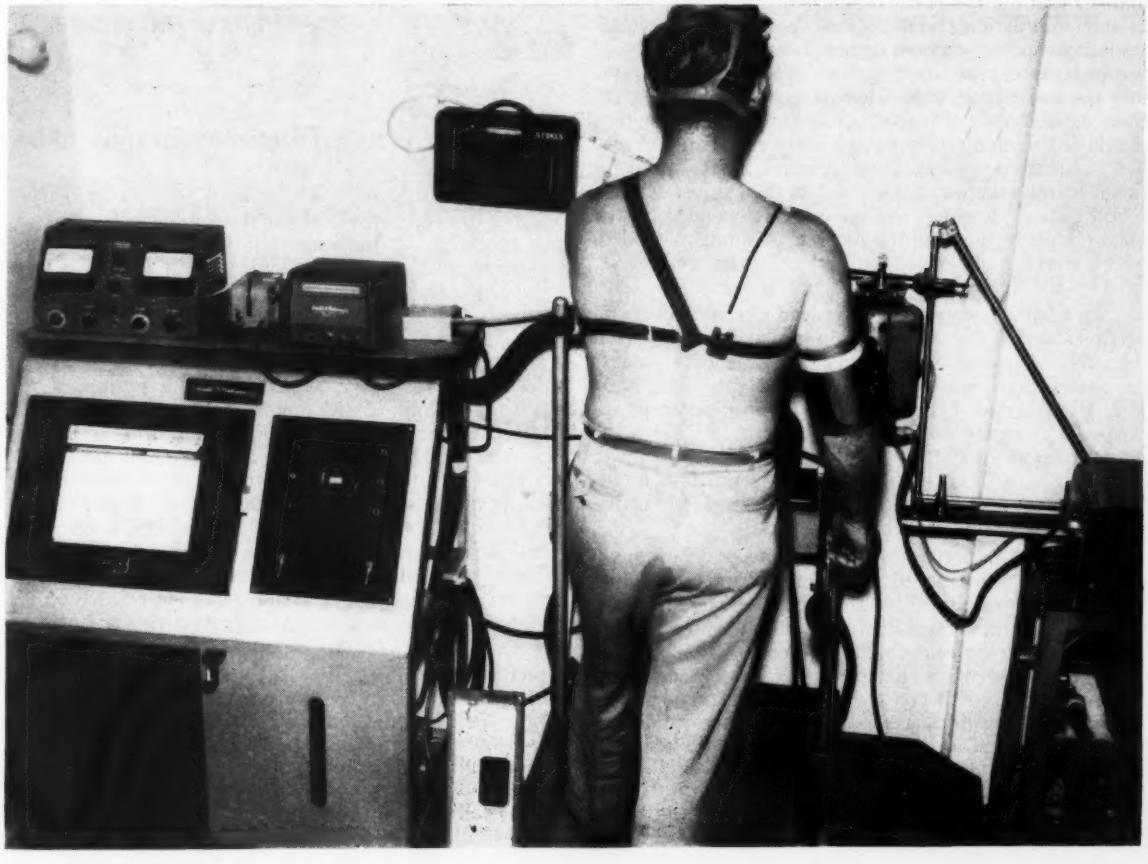
No attempt is made here to collate or review the enormous quantity of literature bearing on the physiology of pulmonary and cardiac function. However, an attempt is made to describe briefly the laboratory methods in question and to point up their importance, particularly as they may relate to the problems of the patient who has impairment of the lungs and heart. In solving his problems it is of utmost importance to all concerned that physiologic criteria which indicate pulmonary and cardiac function be quantitatively measured and objectively evaluated.

The primary purpose in operating the Metabolic Laboratory of the College of Osteopathic Physicians and Surgeons is to contribute through research to the sum of medical science. What is fundamental research today is applied research tomorrow.

A second purpose in operating the Laboratory is to

§Since this Symposium was presented, Dr. Brant has resigned from the staff of the College of Osteopathic Physicians and Surgeons.

Fig. 1. Physical fitness testing using specific physical apparatus. (Copyright 1957 by J. W. A. Brant.)



stimulate pertinent research interests among members of the osteopathic profession. Research ideas can be tendered, research proposals crystallized, and projects conducted. In this sense a service is provided to the research-minded osteopathic physician and surgeon.

A third purpose in operating the Laboratory is to collect from members of the profession patients on whom quantitative measurements and objective evaluation of cardiorespiratory function can be made, consistent with the research regimen and design in progress. In this sense a service may be provided for such special patients.

One of the research projects currently under way is that in which a selected group of emphysematous subjects are being studied. The project is didactic because it serves to describe here how subjects may be processed through the Laboratory.

Cognizant of the need for emphysematous subjects in the pertinent research project, physicians of the greater Los Angeles area referred a substantial number of these patients to the principal investigator. From this pool, a group was selected after careful screening. This required careful inspection of each subject by a team of investigators. Personal and medical histories were recorded and studied. Repeated physical examinations were performed; these included fluoroscopic examination, chest roentgenograms taken peripherally, and routine laboratory tests of the blood and urine. Then the group was referred to the Laboratory for preliminary, initial, and final testing consistent with the design of the research project. Arrangements were made for the subjects to arrive at the Laboratory early in the morning in a near basal state of metabolism.

In Step 1, spirometry was performed in such a manner that the following measurements were possible: minute ventilation, tidal volume, respiratory rate, alveolar ventilation, oxygen uptake, heat production, basal metabolic rate, ventilation equivalent for oxygen, expiratory reserve volume, inspiratory reserve volume, inspiratory capacity, vital capacity, timed vital capacities, maximal breathing capacity, capacity ratio, air velocity index, breathing reserve, and dyspnea index. Conventional spirometry was performed as the subject sat in a relaxed state. Residual volume was determined by the open-circuit technic via the oxygen washout method in which alveolar and mixed expired nitrogens were measured on the Scholander gas analysis apparatus.

In Step 2, a standard twelve lead electrocardiogram was recorded as the subject lay in a relaxed state. From this, the following electrocardiographic measurements or observations were possible: heart rate, height of P-2, PR interval, QT interval, QT ratio, per cent increase or decrease of QT, QRS interval, ST elevation or depression, height of R (V_5, V_6), height of S (V_1, V_2), height of T (V_5, V_6), area of T (greatest amplitude from V_5 or V_6), ectopic beats, and precordial transition zone QRS morphology.

In Step 3, preparatory to having several physiologic criteria monitored continuously and simultaneously, the subject was fitted snugly with a specially constructed respiratory mask and a rubber harness for positioning electrocardiographic electrodes. The mask connected with conventional respiratory tubing, which further connected directly with the large oxygen analyzer. Sampling lines were drawn from this tubing to the small oxygen analyzer, to the carbon dioxide analyzer, and to the nitrogen analyzer. The significance of positioning these electrodes has been previously described. Also, snugly fitted to the subject's right arm was a sphygmomanometer cuff; to the pinna of his left ear, an ear oximeter. Thus, the subject was fitted with the described accessory apparatus in a manner which permitted him to move comfortably and freely during the physical fitness testing which followed.

In Step 4, the subject was instructed to sit 3 minutes, to stand 2 minutes, and to exercise by walking 10 minutes, and to sit 10 minutes immediately following exercise. This comprised the standard procedure of physical fitness testing as developed particularly by Bruce and his colleagues. Throughout Step 4, during each minute-interval of rest, exercise or work, and recovery from exercise or work, observations were registered, recorded and/or monitored, and the following quantitative measurements were thereby possible: blood pressures, heart rate, cardiac output, arterial oxygen saturation, oxygen intake, carbon dioxide output, and nitrogen output. To obtain oxygen measurements, planimetric integration of the areas traced under the oxygen consumption curve was necessary; mean values for oxygen consumption at rest, exercise or work, and recovery from work were derived. These can be converted to energy values.

In Step 5, the subject received a posture analysis by means of a Cureton-Gunby Conformateur and was photographed with a speed graphic camera with Polaroid Land camera attachment. Chest and other body measurements were recorded.

By means of the five steps described above, therefore, quantitative measurements were obtained and an objective evaluation of human cardiorespiratory function was possible.

DR. ANDREWS: Our next speaker is Marjorie Olwen Gutensohn, D.O., who is Assistant Professor of Anatomy, Research Associate, and member of the Department of Technic at Kirksville College of Osteopathy and Surgery. She is certified in physical medicine and rehabilitation.

Electromyography today

DR. GUTENSOHN: There have been an increasing number of references in the literature to electromyography recently, but until about 2 years ago the average physician would have had difficulty in finding a reference text through which he might learn a little more of the technical procedure and what might be expected of it. The first text on the subject was "Clinical Electromyography" by Marinacci[18] of Los Angeles. The title page describes it as being "a brief review of the electrophysiology of the motor unit and its application to the diagnosis of lower motor neuron diseases, peripheral neuropathy and the myopathies." A second book, entitled "Clinical Examinations in Neurology,"[19] written by eight members of the Mayo Clinic Foundation, included one chapter devoted to electromyography. This is probably one of the best books on neurologic examinations which has been published in many years and it is fitting that a chapter on electromyography should be included.

What is electromyography? It is a procedure by which the electrical activity of muscles is studied. It is concerned primarily with diseases affecting the lower motor neuron, neuromuscular junctions, or skeletal muscle fibers. Briefly, the procedure is this: By inserting a needle into a skeletal muscle, changes in the electrical potential are picked up, which may be visualized on a cathode ray oscilloscope and played over a loud speaker for simultaneous visual and auditory

analysis. Permanent records can be made by photograph directly from the cathode ray oscilloscope.

In clinical electromyography electrical activity of muscles is recorded. What is the origin of the electrical activity of muscle? This activity is produced by the muscle fibers and is referred to as muscle action potential. The action potential of a normal muscle fiber originates at the motor end plate. It is triggered into action by the arrival of a nerve impulse at the neuromuscular junction. The action potential sweeps down the muscle fiber in both directions from the motor end plate, exciting the contractile mechanism of the muscle fiber in its wake. The contraction itself produces no electrical activity. In normal muscle, the muscle fibers are organized by the motor nerve into functional units called motor units, each of which consists of a single lower motor neuron and all the muscle fibers innervated by it. That might mean as few as six muscle fibers in the eye or as many as 400 or 500 in the gastrocnemius muscle. During voluntary contraction, all the muscle fibers innervated by a single lower motor neuron act together, the small action potentials summating to produce the larger action potential of the motor unit.

In the normal muscle at rest, the motor units are not active and no electrical activity is produced; the muscle is described as electrically silent. During weak voluntary contractions, only a single motor unit may be active in the vicinity of the electrode. The muscle action potential recurs if the muscle fibers of the motor unit contract in rhythmic fashion at the rate of 5 to 10 per second. We speak of this as the frequency of firing of the unit. The frequency of firing of the motor units increases with increased voluntary effort. This is a fundamental physiologic law: The greater the effort, the greater the frequency of firing. This means there is an increased frequency and more motor units are recruited, each acting rhythmically and independently to increase the strength of the contractions. The smoothness of contraction depends upon the independent rhythmicity of motor unit activity. There are certain conditions, both pathologic and normal, in which synchronization of motor units occurs. Synchronization may occur in normal muscles during strong effort, and it may occur normally in the small muscles of the hand; however, it is of short duration. Pathologically, persistent synchronization may occur in disease of neurogenic origin.[20] During strong contractions many motor units are active so that individual units overlap to the extent that they no longer are identifiable. This is commonly called interference pattern.

The normal characteristics of a motor unit are most important to the electromyographer. Motor units have certain sizes; they have certain amplitudes. The action potential, the spike, will rise to a certain height on either side of the base line and will have certain durations, all of which vary within the normal. They also have certain shapes. Many of them are diphasic or triphasic. Just 4 per cent of muscle action potentials are polyphasic, which means there are more than four phases to the unit.

The electromyographer interprets his findings on the basis of deviation from known normal patterns. One example, which concerns frequency, will illustrate the departure from normal: If on a minimum contraction the needle is in the vicinity of a motor unit, this unit will be expected to fire at a frequency of 5 to 10 per second. If a patient who has muscular atrophy attempts to make a maximum contraction, the speed of firing will increase to 50 per second but no interference pattern will appear. I have said that it is a physiologic law that the greater the effort the faster or the greater the frequency, so two things would be apparent from this finding: The patient is making the greatest effort he can because the single motor unit has increased its frequency; but he has lost the activity of a great many motor units, though the reason may not be known at this stage.

I have said that normal muscle at rest shows no electrical activity, but several types of abnormal activity may be found in voluntarily relaxed muscles, for instance in patients with neuromuscular disorders. This is called spontaneous electrical activity, and I will mention two forms:

1. Fibrillation potentials occur when muscles are denervated. Fibrillation potential represents the spontaneous contraction of individual muscle fibers. They probably are triggered into action by circulating acetylcholine in the blood. They have a characteristic sound and appearance on the instruments: they are very fast, have a very short duration, and are low in amplitude. They are rather easy to recognize.

Fibrillation potentials are visible in the tongue, but not visible through the skin, and thus can be detected only by electromyography. They are of great significance since their presence proves that denervation has occurred, and sometimes this is the only proof. They may be found in any disease which causes degeneration of the lower motor neuron. The lesion may affect primarily the ventral horn cells, the nerve roots, the plexus, or the peripheral nerves. The occurrence of fibrillation in nerve lesions is considered evidence of healthy denervated muscle, and this in itself is important.

2. Fasciculation potentials frequently, although not always, are visible through the skin. They may or may not be significant, since they occur rather frequently in healthy people. If fasciculation occurs and fibrillations are present in the same muscle, this is quite a significant finding; this is commonly found in diseases of the spinal cord.

Electromyographic findings must always be correlated with other clinical findings, and especially with a good history and careful physical examination.

In what instance may we make use of the diagnostic and prognostic procedure of electromyography? The classical, well-developed neuromuscular diseases, such as amyotrophic lateral sclerosis and spinal muscular atrophy, usually are readily identifiable by inspection, clinical testing, and history. A disease such as myasthenia gravis, which is a manifestation of faulty neuromuscular transmission, usually presents little diagnostic difficulty in a well-developed case, nor does a frank dystrophy which is a disease of the muscle fibers themselves. But there are times when a case which is not so well developed may present a problem; then electromyography has been of real value in helping to establish the diagnosis.

What about the use of electromyography in detecting disease of the lower motor neuron? Here the clinician's diagnostic powers may be taxed to the utmost. The patient complains of weakness and pain, but is the weakness due to pain? Is it due to lack of use? Is the lack of use due in turn to pain? Or is it actually due to dysfunction of the motor unit? Has there been some destruction of the motor unit? After the decision is made that the motor units are involved, there remains the problem of localization. Does the defect occur within the spinal cord, in the root, in the plexus, or in the peripheral nerves? For instance, it might be in the

radial groove or the carpal tunnel; this localization is of great importance. In early stages of motor unit disease, the disease may clinically appear confined to one area but be proved by electromyography to be more widespread. For instance, in early progressive spinal atrophy, the only clinical sign may be in the intrinsic muscles of one hand, one of the first signs of the condition, or in one limb. The muscle atrophy is sometimes slow in starting, and may seem to be a lesion of the brachial plexus if it is in the upper limb. The clinician might consider rib lesions as the cause but an electromyographer might find fibrillation potentials not only in the hand but also in the small muscles of the feet. The fact that the electromyographer found such widespread denervation would have great significance. It would suggest a lesion of the central nervous system rather than of the peripheral nerves.

In the normal muscle at rest, the motor units are not active and no electrical activity is produced

Electromyography can be equally valuable in demonstrating negative findings. In malingering or hysterical patients it is at times difficult to evaluate clinical tests. Such patients may present a picture of muscular wasting, weakness, and even paralysis. The absence of abnormal motor units in such cases can be of the greatest importance. Conversely, electromyography may reveal abnormal motor units in a patient who has been branded a malingerer.

Electromyography may also be of service in differentiating between atrophy due to denervation and that which is due to primary disease of the muscle—for instance in dystrophy. Defects of transmission at the myoneural junction, such as occur in myasthenia gravis, may also be detected by electromyography and so aid in the diagnosis of the disease.

In considering lesions affecting the lower motor neuron, one of the important contributions of electromyography is in localization. The presence of fibrillation potentials indicates denervated but still healthy muscle. If fibrillation potentials are widespread, the lesion is probably central in origin, except possibly in polyneuritis when positive diagnosis would depend upon the history and clinical findings.

In a lesion of a nerve root, as by compression of an intervertebral disk, fibrillation will be confined to muscles innervated by this root. Sometimes there is more than one root involved and it will be in the distribution of both the dorsal and ventral rami. This is quite significant because the fibrillation will occur in the erector spinae mass as well as in the musculature of the extremities because the plexuses are formed from the ventral rami of the nerves and the dorsal ramus innervates the erector spinae mass. So if the lesion is in the root fibrillation potentials will be found both in the erector spinae mass and in the distribution of the peripheral nerves. If it is a lesion involving the plexus, it will be found only in the distribution of the ventral rami. The radial groove is a common area for a lesion to occur. Then muscles of the upper arm would show no fibrillation potentials but the muscles in the forearm or hand could.

In differentiating between myopathic disease (disease of the muscle fiber itself) and neuropathic disease, the character of action potentials on voluntary contraction is most helpful. In myopathies there may not be a noticeable decrease in the total number of action potentials but there is a decrease in amplitude. The probable reason is that in myopathies, as in dystrophies, there is a progressive diminution in the number of fibers making up the motor unit so the over-all amplitude tends to decrease. In diseases of the peripheral nerves the amplitude may be normal but there is a decrease in the number of potentials.

The differentiations are not always simple. The electromyographer is at times faced with difficult decisions. Whatever his findings, they must always be correlated with the degree of weakness and atrophy of the muscles and with information as to duration before it is possible to arrive at a satisfactory conclusion.

So far electromyography has been considered in its role as an aid in diagnosis. It also has a very real role in prognosis. Damaged peripheral nerves can regenerate; there is electromyographic evidence of regeneration by a decrease in the fibrillation potentials. As the newly regenerated nerve fibers reach the muscle fibers, fibrillation ceases and new muscle action potentials appear which are quite polyphasic in character and somewhat low in amplitude.

The interesting fact from the prognostic point of view as well as from the point of view of rehabilitation is that the evidence of reinnervation is known to the electromyographer before it is apparent to the patient. The electromyographer can see the decrease in fibrillation potentials and the appearance of new motor units and can encourage the patient. There can actually be weeks between the electromyographic signs of reinnervation and the actual ability of the patient to perform a contraction of the affected muscle. If, on the other hand, fibrillation potentials do not decrease and muscle action potentials fail to appear, the patient may be sent on to a surgeon. It may be that the regenerating fibers of the nerve are prevented by scar formation from reaching their proper destination.

Information that reinnervation is progressing satisfactorily is of greatest value to the total rehabilitation of the patient. It is important that the muscle be kept in as good shape as possible awaiting reinnervation; that is, that fibrosis and contracture be kept at a minimum. The electromyographer more than anyone else has the responsibility of signalling the end point of treatment.

It is well known that in poliomyelitis the tibialis anterior is frequently very hard hit. If upon electromyographic examination after a certain period there is absolutely no sign of reinnervation in the form of polyphasic action potentials or decrease in fibrillations, it may be best to recommend that the patient wear a brace and all efforts be directed toward the muscles which are showing better prognosis.

The electromyographer may also determine whether or not there is to be surgical intervention. I can recall one case of idiopathic facial paralysis in a girl of 13. In this condition signs of recovery are expected after about 6 weeks. As far as the patient was concerned, at the end of 6 weeks her face was just as paralyzed as it was on the first day, but on the electromyograph, al-

though there were still signs of extensive atrophy, there were a few polyphasic units. In view of this finding, the neurologist was advised to wait a while to see what would happen. One month later the picture was only a little better. There were signs of reinnervation, but the patient still did not look very much improved. This went on for 4 months, before total recovery took place. Without electromyographic findings that patient very probably would have been subjected to operation long before that time.

There are times when it is quite difficult to determine clinically where some muscle weakness lies. It is possible with electromyography to detect weakness in muscles, which may be obscured by action of synergists; therefore, electromyography is of value in helping to plan an exercise program.

In summary I would say that electromyography is an aid in diagnosis and prognosis. It is an aid in determining whether sufficient progress in reinnervation is occurring and in determining the end point of treatment. It is an aid in planning an exercise program and in muscle re-education.

DR. ANDREWS: Our next speaker will be R. Gilbert Dorrance, D.O., of Pittsburgh, who has just been elected president of the American Osteopathic College of Physical Medicine and Rehabilitation. He is certified in physical medicine and rehabilitation.

Rehabilitation of the patient with arthritis

DR. DORRANCE: The goal of rehabilitation in arthritis is the same as the goal of rehabilitation in other diseases or disabilities: to restore the individual to the maximum function of which he is capable. We have heard several definitions of rehabilitation but the description I like is that rehabilitation is the formal recognition of convalescence. That is a good phrase to describe this third phase of medical care, the first being diagnosis and the second definitive medical and/or surgical treatment.

The three main things that an arthritic or other physically disabled patient needs are: (1) To be able to walk and travel about; (2) to be able to care for his daily needs; and (3) to have maximum use of his hands. No patient should be discharged from an institution unless he has reached his maximum ability in these three areas. Heat, manipulation, massage, exercise, electricity, and other modalities of physical medicine are very useful but functional activities are more important in the rehabilitation of arthritics. Training the patient to make the best use of what he has left can perhaps help to restore him to self-care and even to a useful occupation.

Physical rehabilitation in arthritis begins on the day the patient can perform activities without aggravating his disease. This, of course, may mean waiting until the acute phase of the disease has been brought under control. The degree of joint limitation must be determined in order to evaluate and recommend the proper rehabilitation.

Measurement procedures in physical medicine and rehabilitation are, I think, a key point. Efforts to measure and evaluate and diagnose are made by the use of simple tests or elaborate machinery. Rehabilitative equipment need not be fancy or high priced; much of it is simple. Joint movement, for example, can be measured by a goniometer. A tape measure may be used in measuring the circumference of a leg or arm that is being treated for restoration of muscle power.

Careful charting at each visit enables the physician to compared the condition of the joint or muscle group from visit to visit. The Veterans Administration hospitals use a good system in measuring this progress, and the National Foundation for Infantile Paralysis has a method of charting muscle power that is very satisfactory. They call 100 per cent muscle power 5-N or normal; 75 per cent is 4-G or good, which means that there is a complete range of motion against gravity and some resistance but the muscle fatigues more readily than normal. Their grading of 50 per cent or 3-F means a fairly complete range of motion against gravity but the muscle will tolerate no resistance to its activity; 25 per cent is classified as 2-P or poor, a complete range of motion with gravity eliminated. The muscle group can move the joint if it is on a board that eliminates all gravitational friction. Ten per cent of normal means 1-T or a trace; there is just slight evidence of contraction; O means no evidence of contraction. S means spasm and SS severe spasm; C means contracture and CC severe contracture. Only when the strength of a group of muscles is known can the danger of overworking weak muscles be avoided; these simple clinical tests, as Dr. Gutensohn pointed out, should be supplemented with electromyographic examination.

The next step in the rehabilitation of arthritics is to determine the functional handicap. What can the patient do? What can he not do under the demands of daily living? There are some ninety-nine activities that we all do and take for granted, but when arthritis is moderate to severe they are often restricted. Our practice is to do a daily activities test on these people. It is a simple determination of what the patient can do at the start of treatment: Can he walk, dress, undress, eat, drink, and tend to his toilet care? All of these things are indicated in his chart. A self-care activities chart will help determine how the patient can cope with the demands of daily living.

. . . rehabilitation in arthritis begins the day the patient can perform activities without aggravating his disease

There are several steps in the physical rehabilitation of the arthritic patient. When the disease is fairly acute, the patient must use a firm mattress or a bedboard. The use of removable splints is recommended to partially splint certain joints in good position to prevent muscle contracture. Heat, of course, is the universal treatment, used three times a day for 10 to 30 minutes as hot fomentations, infrared lamp treatment, or paraffin baths. Certain muscle exercises can be done in bed, and

deep breathing exercises should be done several times a day. Passive exercises, in which all movement is accomplished by the therapist, may be used or active assistive exercises may be recommended whereby the patient assists the therapist in moving the joints. After the patient becomes semiambulatory there are exercises with gravity eliminated. The use of other things such as canes, crutches, and pools also help the diseased joint.

The use of medications such as ACTH and cortisone makes a more intensive physical rehabilitation program possible. These drugs often reverse the pathologic physiology in the joint but they do not change the morbid anatomy. The need for functional rehabilitation and muscular re-education is still there. Such medication allows for a faster progress in physical medicine and rehabilitation. Exercise and stretching of the joints by hand may be repeated more often and resistive exercise increased more rapidly, apparently with less muscle fatigue.

If an arthritic has been treated in an institution and if he has arrived at the point where he can be discharged for home care, a very definitely prescribed program must be set up to get the best results. Under physical medicine and rehabilitation, the prescriptions are accurate. The day's program may be somewhat in the following manner:

7:30 a.m.	Self-care, dressing, toilet care, et cetera
8:00 am.	Breakfast
9:00 a.m.	Heat in whatever form indicated, 20 to 30 minutes, followed by exercise 5 to 15 minutes, followed by occupational therapy
10:00 a.m.	Rest 1 hour
11:00 a.m.	Activity such as reading
Noon	Lunch
1:00 p.m.	Rest
3:00 p.m.	Heat, exercise, occupational therapy
4:00 p.m.	Recreation
6:00 p.m.	Dinner
7:00 p.m.	Entertainment
8:00 p.m.	Heat, exercise, occupational therapy
9:00 p.m.	Self-care and preparation for bed

The home care program and progress must be frequently re-evaluated. It has been discovered at the Mayo Clinic that patients tend to lose interest unless the therapist or physician checks at least every month to see how things are coming, to make changes in the program, and to encourage the patient.

Home care equipment is basically simple. Use of bakers or infrared lamps, massage, and all exercises can be carried out by a relative or friend who has been simply trained. A full-length mirror is advised in gait re-education. Apparatus such as bed-boards, splints, and cervical traction equipment may be used at home.

There are also available rather simple self-help devices for the patient with arthritis. I would mention things like a high-seat chair for those in whom severe spine or hip arthritis greatly limits mobility. A chair with the seat raised 25 inches from the floor makes it easier for the arthritic with ankylosis of the hip joints to get up and down. The Institute of Physical Medicine and Rehabilitation in New York under Dr. Howard Rusk has published several monographs, one of which is called "Self-Help Devices for the Arthritic."[21] This pictures simple things to help the arthritic and gives the source and the price. These devices do not replace the use of direct therapy but should be used to compensate for impediments that present a therapeutic impasse.

There is an aluminum stick with a socket in the end into which are fitted appliances such as a long-handled comb. An arthritic with shoulder and arm impairment has difficulty using a regular comb but can manage with this device. A shoe horn fits into the same appliance, as well as other additions. All these things sound very simple, but they are extremely important to the impaired patient. They mean that he can care for his own needs and thus require less help from others; this lifts his morale. All sorts of special eating tools are available, which are not expensive. Many types of crutches have been devised, and this monograph is full of suggestions and advice; it is emphasized that the equipment does not have to be complicated or expensive.

DR. ANDREWS: We have emphasized rehabilitation in our patients, rather than medical care. This has been done to answer questions which have come to us regarding the subject of physical medicine and rehabilitation. We hope that this group of qualified experts has answered some questions. I want to thank them for appearing on this program, and the audience for being present.

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EMOTIONAL and psychologic factors in SURGICAL problems*

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WHEN I WAS A premedical student in a Philadelphia university, I thought I wanted to be a surgeon, and I seized every opportunity for contact with the gods of the specialty. In pursuit of such contact, several of us once sneaked into the surgical amphitheatre of a well-known local hospital to watch the gods at work.

In the pit, a loud-voiced, blustering figure dressed in sterile white but also wearing squeaking riding boots was conducting a one-man show. "Bring in my next case!" he shouted through the door to unseen assistants in the preparation room. Sobbing was heard, and a sheet-draped, terrified, weeping, half-anesthetized, middle-aged woman was wheeled in. The surgeon looked at his chart. "Cholecystectomy," he announced. The wails became louder. "Get her out of here!" the doctor blasted. "I can't operate on anything like that. Bring on my next case."

Then and there I began to be interested in the emotional and psychologic elements of surgical problems. Why was this woman afraid? Of what was she afraid? What had been done to discover and help her understand and manage the cause of her terror? I became more and more interested in the *feelings* of people: their attitudes, the emotional effects of these attitudes, and the visceral and somatic alterations resulting from these attitudes and emotions, until finally I made human behavior my specialty. This may seem a far cry from my first interest. Actually it is not. The surgeon's patients are human beings, and their symptoms, more often than not, are the result of somatic changes produced by emotional conflicts. So I have only gone one step beyond my original aim of relieving suffering by cutting out the offending organ. I now try to help people find out how the difficulties really started.

Surgeons have been long in learning that a neurosis is not subject to surgical extirpation. Surgical orientation has been chiefly along Biblical lines: "If thy right hand offend thee, cut it off. . . ." But a sufficient number of patients have retained their symptoms in spite of operations to cause surgeons to become interested in what lies behind the patient's symptoms. They have begun to see the full import of that old physician's statement: "There is a patient who has the disease as well as the disease which has the patient."

All surgeons have had patients whose organic problems did not respond to surgery, or who even became worse after surgery. The postsurgical progress may be unsatisfactory, and convalescence prolonged because the surgeon is unaware of or does not understand the emotional reactions underlying the condition.

A simple example may illustrate this best. You amputate the hopelessly crushed left leg of a young coal miner. You are able to make a well-padded stump; there are no sutures at future weight-bearing or pressure points; healing progresses nicely, and you tell yourself, "That's a fine bit of surgery, and the leg is making a wonderful recovery." But do you think about the young man who is wondering how he will get along with only one leg; how he will support his family; whether he will be able to educate his children; how his wife will feel about a one-legged husband?

The surgeon may believe that the chain of emotional and environmental alterations set off by the surgical procedure is outside his field of responsibility. Medical and social progress says otherwise.

Those who have not made a practice of talking with patients about their inner feelings as well as their somatic sensations will perhaps find it difficult to believe much of the material in the rest of this paper. They will think that these things may be true of other doctors' patients but not of their own, because they are careful, conscientious surgeons. I anticipate this reaction and ask my readers not to close their minds and to readjust their prejudices before hearing the evidence.

If the surgeon will begin a new habit of giving his patients a chance to talk about themselves as people and express how they feel about a proposed operation, he will find as immediate causes of preoperative anxiety, and hence causes contributing to trouble in convalescence, such factors as fear of mutilation, fear of being crippled, fear of death, and fear of economic complications.

The surgeon can help his patient verbalize preoperative fears, accept them, and adjust to them in most instances through the simple expedient of showing enough empathy to encourage the patient to talk. All surgeons want calm and relaxed patients, and sympathetic listening is the best way to give your patients the security that will enable them to relax and be calm. Those who like to understand psychodynamics fully can find in the literature evidence of the dynamic relationship (in the unconscious) between fear of mutilation and early castration fears. And there is a dynamic relationship between fear of losing consciousness and fear of death as conscious fears, and the unconscious residuum of the child's idea of annihilation by the feared parent. But these dynamisms, while helpful to the doctor's

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understanding of the causes of his patient's behavior, need not—in fact, should not—be actively used in the brief type of mental catharsis I am here recommending.

Fears of the types just described are, unfortunately, not the most challenging of the emotional factors in surgical problems. It is in the realm of the psychophysiologic disorders (or, as they used to be termed, the organ neuroses) that the surgeon is most frequently confounded and emotionally outwitted by the unconscious conflicts of his patients.

The surgeon can help his patient verbalize preoperative fears, accept them, and adjust to them in most instances

These are the patients about whom it is often said, "Unconsciously, they want to be sick." I would make it even stronger and say that because of their psychodynamics, they *must* be sick. We all know that emotions such as fear, anger, resentment, guilt, hatred, shame, or embarrassment produce physiologic changes in the human body. The experiments of Cannon on physiologic effects of fear, hunger, pain, and rage form part of the basic teachings of physiology in medical schools today.

We also know that weeping, laughing, blushing, changes in blood pressure and heart rate, or even disturbances of bowel and bladder function occur under strong emotional stress. But we must use *psychologic* as well as physiologic terms to describe fully the factors which produce these phenomena. We must include attitude and past conditioning and symbolic meaning (all terms of psychologic significance) if we are to explain adequately why these behavioral aberrations result from emotional stress. We must understand that the continually disturbed emotional status of a person may have its reflection in constant visceral dysfunction, and the vegetative disturbance will vary in correspondence with the chronic unrelieved emotional state.

I refer the skeptical to the vast literature on the subject of psychophysiologic medicine, or recommend a reputable psychiatrist for assistance in critical self-evaluation if the physician's orientation prevents him from seeing the obvious influence of the emotions on visceral functions. This influence is manifested most frequently through three body systems studied repeatedly by the general surgeon: the endocrine, gastrointestinal, and urogenital systems. It is important to consider each of these systems and see how its emotionally produced dysfunctions are of importance in surgical diagnosis and treatment.

Endocrine system

Among the endocrine organs, the thyroid alone will be considered, because it is the organ most frequently subjected to surgical assault.

Since 1925, when Lewis[1] reviewed the literature and concluded that there was no consensus on the pathogenesis of Graves' disease, many writers have reported on the relationship of emotions to disorders of the thyroid gland. Thorn and Forsham have this to say regarding etiology: ". . . however, in a large number of cases there is a clue in the correlation between episodes of psychic trauma . . . or other types of stress at the onset of thyrotoxicosis."[2] Even earlier Hyman and Kessel[3,4,5] were more emphatic: "Our patients almost without exception give a history of psychic trauma preceding or associated with the development of the symptoms of exophthalmic goiter."

But it was Conrad[6] who, after a detailed study of hyperthyroidism in 166 women and 44 men, made the first clinically validated summary of the dynamics involved. She found a history of psychic trauma in 94 per cent of patients in the series and concluded that while the "classical neurotic" manifests his symptoms at a cortical level (in phobias, obsessions, and compulsions) without somatization, the hyperthyroid patients express their conflicts in excessive energy discharged through the autonomic nervous system. When this psychopathologic condition develops in persons who have a constitutional defect, a hereditary predisposition, or previously acquired disease, the typical syndrome of hyperthyroidism develops.

Because of their psychologic conditioning these people are not equipped to manage stress situations. They often respond poorly after operation. It seems wise, therefore, to evaluate the personal history of every patient before a decision is made about surgical intervention, especially since, as Mayo[7] has said, "Graves' disease is never an indication for emergency surgery." When an adequate past personal history is taken, it will be found that there was one or more previous episodes of "nervousness" or "breakdown" before the onset of the hyperthyroidism. The patient will have emotional patterns suggesting (1) great need for recognition and for dependence; (2) excessive self-love; and (3) overconformance to accepted ideals. With these findings, no surgeon will question the need for psychologic preparation before operation and for psychotherapy afterward.

Ficarra[8] calls attention to a potentially serious problem in patients with symptoms suggesting hyperthyroidism. His studies emphasize the ease with which mental disorders (neuroses) and thyroid disease may be confused. While I believe that surgeons are more cautious about operating on the thyroid than they were 10 years ago, there is still a need for emphasis on the importance of differentiating thyroid disease from psychophysiologic asthenic reactions and from anxiety neuroses. Admittedly there may be an alteration of the basal metabolic rate in these neuroses, and the patient is certainly "nervous," tense, anxious, and perhaps even restless and hyperactive. But these are all emotional effects, and should never of themselves lead a surgeon to a diagnosis of Graves' disease. I had one such patient whose family doctor and surgeon had made three successive determinations of basal metabolic rate until the final one was +30. The patient was operated on but the neckline scar did not change the neurosis. One year I had three such patients under my care simultaneously, and there is scarcely a time when I do not have at least one among those under therapy. Most of these diagnostic errors occurred because the life situation of the patient (which certainly would have given the key to the real problem) was not investigated.

In addition to a past personal history (which is imperative) there are several tests which will rule out Graves' disease: (1) No von Graefe's sign, (2) blood

pressure at or near normal, (3) no increase in appetite, and (4) negative quadriceps test. These findings plus a past personal history that is positive for emotional disturbances will tell you that the problem is a neurosis, even if your patient does have a fast pulse and a basal metabolic rate of +40.

I have not discussed radioactive iodine uptake, because it measures only thyroid activity. It does not tell *why* the thyroid is hyperactive or hypoactive. Metabolism can be markedly increased and the thyroid definitely overactive in the patient showing the stress syndrome with anxiety and restless hyperactivity.

Gastrointestinal system

The second of the three body systems mentioned earlier is of greater importance in the emotional economy of man than is the endocrine system. We all know that the abdomen is "the sounding board of the emotions." We all have experienced "butterflies" in the stomach, a lump in the throat, increased bowel activity during periods of stress. All are familiar with the very significant expressions that indicate emotional attitude in terms of gastrointestinal functions. "I can't stomach that," "I can't swallow that," and "That scared the guts out of me" are examples of such abdominal organ language. Yet this knowledge is too often pushed into the background when the patient comes to the surgeon with a complaint of abdominal distress. It is strange that a truth known to the physician from his own personal experience is ignored when he assumes the role of surgeon.

Of the entire gastrointestinal tract, the stomach and duodenum are the two areas most commonly brought to the surgeon's attention. It is important to consider how the patient's emotions are involved in gastric and duodenal problems that appear to be surgical.

It has been 100 years since William Brinton[9] surveyed 1,100 autopsies of gastric ulcer patients, personally observed 100 autopsies, and examined 150 living persons whom he treated for ulcer. He concluded that mental anxiety so often accompanies ulcer that it could be regarded as a more or less immediate cause. But the majority of doctors pay little more than lip service to the now generally accepted concept of ulcer as an end result of emotional disturbance. Their attitude seems to be: Yes, ulcer is an emotionally produced lesion, but I will treat the lesion and hope that the cause will go away.

There appears to be an increase in the number of gastric resections for ulcer. Usually the surgeon and the family doctor say that they resorted to operation because the patient did not show satisfactory progress under conservative management. In the light of the known psychodynamics of peptic ulcer, if the conservative management did not include intensive psychotherapy it was not adequate management.

In an interesting little monograph which should be required reading for every physician, Sullivan and McKell[10] have correlated the observations of internists, gastroenterologists, physiologists, surgeons, and psychiatrists concerning the dynamics of peptic ulcer. The ulcer patient is summarized as driving, active, versatile, successful, responsible, and determined, but also restless, overextended, conscientious, insecure, dissonant, and driven. The authors emphasize the importance of studying the life history and of the clinical use of recently gained knowledge of psychosomatic problems. Certainly the day is past—if it ever existed—when surgeons could justly feel that their responsibility began and ended with operative management of the lesion.

Even in those instances in which a conscientious evaluation of the total situation indicates the necessity of surgical intervention, the patient must still be psychologically prepared. The patient's body image of his stomach is intimately related to his needs for emotional sustenance (dependency), and removal of this organ often disrupts his total self-concepts unless he has been given an opportunity through preoperative psychologic preparation to ventilate some of his fears and reorient some of his self-concepts. Many instances of diarrhea, pain, spasm, and the dumping syndrome follow subtotal gastric resections in patients who were not psychologically prepared.

Much could be said of the value of analytically oriented psychotherapy together with chemotherapy, diet, and osteopathic manipulative therapy in the management of ulcer, but we are concerned with the surgeon's rather than the internist's problems. I am convinced, however, that the patient's emotional make-up is the factor of prime importance in peptic ulcer problems, and that when psychotherapy is the prime method of treatment, fewer patients will become surgical problems.

At the beginning of this paper I reconstructed a scene with a tense and terrified patient scheduled to undergo cholecystectomy. Less well known to the layman but just as discernible to the clinician as emotionally produced gastric dysfunction is the effect of emotions on the biliary tract. This has been known since the time of Hippocrates. That ancient doctor was not familiar with twentieth century concepts of psychodynamics, but he was an astute clinician and a shrewd and accurate student and observer of human nature. His description of the "choleric temperament" could scarcely be improved on today. Yet some 2,000 years later, less than one surgeon in a hundred bothers to investigate the temperaments of his "gallbladder cases."

The relationship of hostility, misanthropy, and rejection to both colonic and gallbladder dysfunction is becoming more apparent to surgeons who have oriented themselves in interpersonal relationships. Weiss and English[11] state that many so-called noncalculous cases are in reality upper digestive tract reflections of emotionally produced colonic disorders (mucous colitis) rather than gallbladder disease. To remove a gallbladder in such cases is probably to invoke all the evil consequences of polysurgery. These are the patients whose gallbladders show stasis—the nonfunctioning gallbladder in the x-ray report. These patients have pain and discomfort, because their emotions are producing spasms of the sphincter of Oddi, of the common duct, and often of the bile duct in the same way that emotions produce spastic colitis. But when the gallbladder is removed, the pathologist reports it as normal, even though

. . . fear, anger, resentment, guilt, hatred, shame, and embarrassment produce physiologic changes in the human body

the surgeon found it distended. If the pathologist tries to support the surgeon's diagnosis, he will render a diagnosis of "cholesterosis."

A cholecystectomy is almost never an emergency procedure. Would it not, therefore, serve your patients and your profession better if you insisted on a past personal history from every patient with gallbladder symptoms? When you can see the total patient in his life situation, it is often apparent that the gallbladder is only obeying autonomic nerve impulses from an emotionally disturbed hypothalamus. It is surprising what good results can be obtained by superficial psychotherapy.

Although operation for so-called chronic appendicitis is not nearly as common as it was when I started in practice, there are still occasions when abdominal discomfort is blamed on that hapless organ. Alvarez[12] and others have shown the futility of performing an appendectomy when no history of acute attack can be obtained. The patient whose conflicts and guilt feelings are referred to the lower bowel may commonly complain of discomfort in the lower right quadrant. There may be an associated listlessness, disturbance of sleep, poor appetite, constipation, and headache. In Alvarez' study of 225 appendectomy patients who had had no acute attack, only 2 were cured of their symptoms by operation. I have had many patients with a similar story who were led into repeated operations by the chronic appendicitis route. The following history briefly typifies these cases.

The patient, a white woman, aged 45, gave as her chief complaint "terrific pain, bloating and gas, and nervousness." Appendectomy had been performed for similar symptoms 15 years earlier. Symptoms persisted. After cholecystectomy 5 years later the patient "wasn't a bit better." There followed a perineorrhaphy, an exploratory laparotomy "to remove adhesions," and a herniorrhaphy. A surgeon then told the patient her persistent symptoms were due to the steel clips placed in the abdominal wall during the herniorrhaphy. Following this, a physician told her that a certain very potent and very expensive pill that was very difficult to obtain would cure her, but it didn't.

Polysurgery had complicated her neurosis by distorting her body concepts and fixing in her thinking the belief that her difficulties were primarily physical and could be surgically removed. Meanwhile, the roots of neurosis had grown 15 years deeper. The patient is now in her mid-forties, and any improvement of her life adjustment will be immeasurably more difficult to effect than it would have been when she was thirty. A look into this patient's past personal history before her first hospitalization would have made obvious the guilt-laden, obsessive-compulsive nature of her personality.

Genitourinary system

Emotional factors in surgical problems of the genitourinary system can be brought into focus by study of the uterus from the psychophysiologic viewpoint. The fact that man has long been aware of a relationship between emotions and the uterus is attested by the Greek word "hysteria." In ancient Greece (and in too many instances in twentieth century United States), psychologic aberrations were thought to result from altered uterine function. Happily, an increasing number of physicians are finding the reverse to be the true relationship.

The woman's ideas, thoughts, feelings, and drives are intimately interrelated with her uterus and its functions, and operation on that organ will have a special meaning to her. Her guilt feelings over masturbation or extramarital sex activity, her concepts of the feminine role in life, her feelings of personal worth, her ideas of giving and receiving love, her sadomasochistic concepts, her aggressiveness and hostility, her ideas of social disapproval—any combination of these emotionally charged concepts and attitudes may be disturbed when the uterus is surgically attacked. Many times I have heard patients cry after hysterectomy, "I'm just a hollow tube," or "I'm just an empty shell," or "I'm just a mockery of a woman," or "My husband says I'm no good as a woman any more."

Every surgeon should be aware of the psychologic castration effect of the loss of the uterus. He should be certain that the woman is helped to accept this loss psychologically and to alter her mistaken fear about a resultant loss of femininity. This must be done as a part of the *preoperative* procedures. It is too late when the woman feels she has already been castrated. If the surgeon would contemplate his own reaction were he threatened with castration, I am certain his attitudes toward hysterectomy would change.

I think it an important fact that many women are cervix-sensitive and do not achieve orgasm unless the cervix is repeatedly and rhythmically stimulated. This is a controversial subject among physicians, but my studies indicate that such is the case in at least 20 per cent of women. To remove the cervix in such a woman is comparable to amputating the glans penis in the male. I have had a number of such women as patients and their stories are identical: no orgasm after surgical removal of the cervix.

Fortunately, however, these women possess the capacity, if psychologically prepared before surgery (and with the husband's patient cooperation), to transfer their sense perception gradually back to the clitoris. Obviously, then, the matter of location of voluptuous sensations should be a part of the personal history of every female patient.

In the woman who rejects her feminine role, there may be an unconscious wish to be rid of the organ that to her represents womanhood. The desire for elimination of the uterus produces pelvic symptoms which send her to doctor after doctor until she finds one who will grant her wish and take out the unwelcome organ.

Another common emotionally produced situation is that in which the woman fears surgery less than she fears something else. Often, though not always, she fears heterosexual adjustment and submits to almost any operation rather than enter into a normal role as wife and mother. These women always do well in the hospital, are reluctant to leave, and you can be sure they will be back. It is a mistake to operate on them, and each successive operation compounds the error. What they need is help in adjusting to a heterosexual life. The surgeons who does not look into the personal history of his patients may take the woman's symptoms as evidence of primary organic disturbance while her neurosis continues.

Many other types of emotionally produced uterine problems can be found in the literature. I have tried only to give an orientation in the ways in which certain aspects of human psychology produce surgical problems. Each woman, however, becomes a problem for individual evaluation. We must remember the admonition of Allbutt[18] who stated in 1884: "Arraign the uterus, and you fix in the woman the arrow of hypochondria, it may be for life!"

Summary

I may seem to be advocating an exchange of operating table for analyst's couch. Actually, I have attempted to point out that the surgeon, because of his primary orientation in tissue pathology, is apt to be insufficiently aware of the tremendous influence that ideas, attitudes, beliefs, and fears exert on body structures, especially those served by the autonomic nervous system. I have stressed the necessity for evaluation of the patient as a social unit by means of a past personal history as the only means by which the surgeon can find out about the patient's relationships to his environment, both internal and external.

I believe that a past personal history should be incorporated into the case record of *every* surgical patient. A flat plate of the chest of every hospital patient has revealed how many unsuspected lesions? Blood examination is routine also. How many cases of unsuspected syphilis have been found through this laboratory test? If it is good rational preventive medical care to have these two tests made, is it not equally valuable to record the past personal history of every patient? For *every* patient's emotional and psychologic make-up will influence his total symptom picture.

Finally, I have indicated that psychologic preoperative preparation is as vital to the total health and good recovery of the patient as is physical preoperative preparation, and that psychotherapy is often a necessary though neglected part of the management of the convalescence period. In most instances this management of the total patient can best be handled by the family doctor or the surgeon.

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Osteogenic SARCOMA of the BONE

With report of a case*

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OSTEOGENIC SARCOMA is one of the most commonly encountered primary malignant neoplasms derived from bone. The most widely accepted classification of this bone tumor was first adopted by the American College of Surgeons Registry in 1928 with a revised classification in 1939.[1] Before this, however, Ewing[2] had discussed the problems of classification of bone tumors. His article also contained the first account of the endothelial myeloma, the tumor which is now known by his name. The 1939 revised classification lists the subdivisions of osteogenic sarcoma as follows: 1) medullary and subperiosteal; 2) telangiectatic; 3) sclerosing; 4) periosteal; 5) fibrosarcoma, medullary and periosteal; and 6) capsular and parosteal. The committee classified chondrosarcoma as a special group of tumors; Phemister,[3] in 1930, was one of the first to emphasize the need for this distinction. The committee also recognized reticulum cell lymphosarcoma, first defined by Parker and Jackson,[4] as a separate entity and removed liposarcoma from the myeloma series. More recently, Coley[5] has stated that fibrosarcoma should also be removed from the osteogenic group.

A malignant as well as a benign form of giant cell tumor was admitted and a system of grading was suggested, which was soon superseded by the system of Jaffe, Lichenstein, and Portis[6] who based grading on stromal differentiation. They emphasized that the so-called variants have little in common with the true giant cell tumors or with one another. These variants have subsequently been defined as benign chondroblastoma,[7] aneurysmal bone cyst,[8] and chondromyxoid fibroma.[9] In 1931, Geshickter and Copeland[10] published a classification based on histogenesis; for the first time the history of the specific types of tumor was correlated with therapy, plus the fact that all types of tumors arising in bone were presented. In 1949, these same authors[11] recognized chondrosarcoma and osteogenic sarcoma, subdividing the latter group mainly on roentgenographic appearance into osteosclerotic and osteolytic types.

In Great Britain a classification by Scharff[12] based on cellular appearance has been in use for many years. MacDonald and Budd[13] modified the nomenclature and classification of bone tumors as established by The Registry, and in the main they suggested a reversal of the usage in regard to the terms "osteogenic sarcoma" and "osteosarcoma." In 1952, Price[14] of The Bristol Tumor Registry suggested a system of grading osteogenic sarcoma on the basis of the mitotic activity of the tumor cells, noting that great mitotic activity is indicative of poor prognosis. A classification published by Thom-

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son and Turner-Warwick[15] in 1955 has only five categories: (1) osteosarcoma, (2) chondrosarcoma, (3) fibrosarcoma, (4) spindle-cell sarcoma, and (5) giant cell tumor. Their classification is restricted to skeletal sarcomata arising from connective tissue and is of particular interest from the standpoint of its relation to prognosis. Lichtenstein,[16] in 1952, published a simple classification of the various types of bone tumors providing clinical, roentgenographic, and histologic descriptions of each type, and describing the majority of the benign lesions which are likely to be confused with malignant lesions.

Description of sarcomas

Medullary and subperiosteal osteogenic sarcomas arise beneath the periosteum and infiltrate the cavity, replacing the marrow and elevating the periosteum. This characteristic area of reactive bone formation is commonly called Codman's triangle. The shaft of the bone is destroyed and the periosteum is essentially perforated so that the tumor grows out into the surrounding soft tissue.

Telangiectatic sarcoma of the bone is a rapidly growing, well-defined, highly vascular tumor. It starts in the ends of the shafts of the bones and rapidly destroys the bone by replacing it with soft red vascular tissue. It is one of the less common forms, and prognosis is poor.

Sclerosing osteogenic sarcoma is a grayish-white firm tumor, between the cortex and periosteum on the shaft side of the epiphyseal line of the long tubular bones, which extends into the soft tissue, producing the characteristic "sun-ray" appearance in roentgenograms.

Periosteal sarcoma is a rare neoplasm which is located on or encircles the shaft of long bones. This class includes only those spindle cell, non-bone-forming growths which do not destroy or produce bone but alter the adjacent bone by pressure from without. The capacity of these tumors to metastasize varies greatly because of their marked variation in cellular structure. Many of the patients who survive osteogenic sarcoma belong in this group, of which the malignant potential is low.

Fibrosarcoma of the bone may arise on the periosteal or endosteal surface. In general these tumors are of a low grade of malignancy, and the prognosis is often good if treatment is prompt.

Capsular and parosteal sarcoma, which are encountered rarely, occur in connection with soft tissues around the joints and bones and themselves produce an osteoid tissue.

Etiology

In spite of numerous investigations on this subject the cause of malignant bone tumors remains unknown. Of the many theories advanced, some are tenable and have practical value while others are pure fantasy. Brunschwig and Bissell[17] produced osteogenic sarcoma experimentally by using radium, roentgen rays, and carcinogenic chemicals. Janes, Higgins, and Herrick[18] produced osteogenic sarcoma in rabbits by injecting beryllium.

A popular theory for the cause of bone tumors concerns embryonic and adult cell rests. Hereditary factors have also been suggested and demonstrated in some tumors. It is controversial whether direct or indirect bacterial infection may produce bone sarcoma. Trauma is widely believed to be a precipitating agent; Moore[19] has stated that up to 40 per cent of patients with bone sarcomas gave a history of recent trauma. However, Haas[20] has set down some criteria for considering the trauma to be of etiologic importance: Sufficient trauma to produce tissue injury at the place the tumor is found; no tumors present at the time of accident; a sufficient interval between the injury and the time of tumor growth; and persistent tissue disturbance from the time of injury to the time of tumor development. Since so many fractures are seen without associated tumor development, there is little evidence that trauma is the only etiologic factor.

Sex and age incidence

Males are more often affected by osteogenic sarcoma than are females, with the greatest incidence being in the second and third decades. Its character appears to be more lethal in children under 10 years of age, but the outlook is more favorable for those in the upper age bracket. Although the next greatest incidence is in older adults with Paget's disease—a conservative estimate is that osteogenic sarcoma occurs in 10 per cent of all cases, it may also be found in patients 30 years of age and older who show no evidence of Paget's disease. It is roughly estimated that one out of every 100,000 persons has bone sarcoma.[21]

Distribution

The majority of osteogenic sarcomas originate in the metaphyseal regions, with common sites being the end of the femur, upper end of the tibia, and upper end of the humerus, in the order indicated. They may occasionally be encountered in the vertebral column, in the jaw bone, in the ilium, and rarely in other sites.

Clinical signs

Pain and swelling of the affected area are the most common complaints associated with osteogenic sarcoma. Often the patient dates his trouble from an injury. As the swelling progresses it takes on the shape of a diffuse, often eccentric fusiform tumor of the underlying bone. With increase in size of the tumor, the skin over it becomes stretched and smooth and shiny in appearance. The superficial veins are frequently dilated. Disability is variable since actual invasion of the affected joint is unusual in far-advanced cases. Cough, pain in the chest, and hemoptysis are late symptoms of pulmonary metastasis. In patients with metastases or rapidly growing sarcomas, appreciable weight loss and marked secondary anemia may be present; in this situation pathologic fracture may occur.

Diagnosis

The investigation of a case should include a careful history and physical examination as well as roentgenographic and laboratory evaluation. From a laboratory standpoint, there are no significant changes in the serum calcium or phosphorus levels. Woodard and Higinbotham[22] have shown that the serum alkaline phosphatase is elevated in osteosarcoma and is highest in the presence of metastasis. If the phosphatase is elevated before treatment and fails to decline to normal following treatment, the outlook is poor because it indicates either residual disease or metastasis. If it falls

to normal following treatment and remains normal for a period but rises again, this also is almost certain evidence of metastasis. Biopsy is indicated in nearly all cases and should be routine prior to a mutilating operation to rule out lesions most frequently diagnosed erroneously as osteosarcoma.

Before reviewing the roentgenogram as a whole, each individual structure should be studied: overlying soft tissues, periosteum, cortex, medullary canal, epiphyseal plate, epiphysis, and articular cortices may be systematically examined. Roentgenographic recognition of osteogenic sarcoma depends largely upon how clear the signs are of subperiosteal extension and cortical perforation, and upon how evident the tendency to new bone formation within the tumor happens to be. In many cases both of these features will be so obvious that it will be relatively easy to interpret them.

Since the majority of osteosarcomas appear to originate in the cambium layer of the periosteum, this structure must be scrutinized for the early changes characteristic of this tumor. If tumor bone forms early in the subperiosteal mass, the spicules tend to possess a fine caliber, radial alignment, and little calcium. A soft tissue roentgenographic exposure frequently gives the best portrayal of the early changes. A reactive triangle appears early in some instances and may be the only indication of the presence of a periosteal mass. In a somewhat later stage, when tumor bone is a prominent feature, the typical shaggy sun-ray spicules may take shape. In a still later stage, the extracortical mass may be so densely consolidated that the sun-ray structure entirely disappears.

When the tumor originates either in the cambium cells of the periosteum or in the cortex proper, there are relatively early localized changes in the cortex. These changes are represented by a surface area of cortical erosion and by localized osteoporosis. Cortical changes are limited to one aspect of the host bone, differing from the widespread riddling of the cortex seen in many diffuse endotheliomas. In sclerosing osteoblastic sarcomas the cortex may actually reveal an increase in density at the site of the tumor. This is from the deposition of dense tumor bone following the resorption of the normal cortical bone. In osteolytic osteosarcomas, a central destructive lesion frequently destroys the cortex from within. This destructive process proceeds so rapidly that no appreciable reactive periosteal bone forms on the surface to give rise to expansion of the cortex.

Metaphyseal cancellous bone and its marrow may be replaced extensively with tumor bone, thereby presenting increased density in the roentgenogram. The process begins eccentrically and spreads across the metaphysis, down the medullary canal, and into the epiphysis. An accurate indication of the extent to which the tumor has advanced down the medullary canal is seldom portrayed in the roentgenogram. Perforations of the epiphyseal plate cannot be detected until they are of considerable size. As with osteoporosis of cancellous bone from other causes, it is the transverse trabeculae that disappear first. This phenomenon is sometimes reflected in the roentgenogram by what appears to be an increased coarseness of the trabecular pattern.

Perpendicular striations of new bone within the subperiosteal tumor are frequently seen, but this is not always a specific sign of osteogenic sarcoma. It may be observed on occasion in Ewing's sarcoma, metastatic carcinoma, and even tuberculosis of the long bones.

A low-grade fever and leukocytosis are frequently present in the latter stages of the disease, but do not usually reach the high level seen in myelomas and endotheliomas.

Pathologic anatomy

Gross examination shows the diseased bone to be expanded by a solid tumor, the incised surface of which has visible or palpable bony areas. The bone cortex is eroded, and there is penetration of the periosteum with involvement of the associated soft tissues. At one end of the scale of bone densities is the sclerosing sarcoma type with its bone of ivory white density and at the other end of the scale the telangiectatic type of sarcoma with its great vascularity, soft to firm consistency, and a minimum of tumor bone. In the middle lie the periosteal and medullary types of sarcoma in which neither sclerosis nor lysis predominate but both are present.

Although most examples of osteogenic sarcoma have a characteristic appearance, the final diagnosis is confirmed by histologic findings. In osteogenic sarcoma these features are extremely variable. However, no matter what the pattern may be in a specific instance, the essential criteria for diagnosis are the presence of a sarcomatous stroma and the direct formation of tumor osteoid and bone by this malignant connective tissue. The connective tissue stroma may be composed of large spindle-shaped cells or may be completely anaplastic and show a polymorphous cellular pattern with the presence of tumor giant cells. Dispersed within this sarcomatous stroma may be seen fields in which osteoid and osseous transformation is in active progress. If the tumor is one in which little osteoid and osseous material is laid down, the original spongy bone undergoes resorption and dissolution but if the sarcoma is one that displays osteogenesis it can be noted in the sclerotized areas within the interior of the affected bone area that the deposits of tumor osteoid and bone have been constructed around the original spongy bone framework or have extended between the trabeculae with consequent obliteration of the marrow spaces.

Metastasis in osteogenic sarcoma occurs almost exclusively by hematogenous spread. Pulmonary metastasis is common, and in rare instances the metastatic tumor cells may pass through the lungs and set up metastatic foci in the brain, skeletal system, and even abdominal viscera. Metastasis to the regional lymph nodes also takes place, although this appears to be an infrequent occurrence. Osteogenic sarcoma usually develops in patients with Paget's disease only if it is fairly extensive and of long standing. Commonly only one bone manifests malignant changes; however, the development of two or more sarcomas within bones transformed by Paget's disease may be seen. It is pertinent to note that the development of chondrosarcoma has also been observed in bones affected by Paget's disease, although this is unusual.[28]

Differential diagnosis

The diagnosis of osteogenic sarcoma in an advanced case may not be difficult to make, but there are instances in which the condition is mistaken for other pathologic lesions. The conditions which may simulate osteogenic sarcoma are: (1) endothelioma, (2) chondrosarcoma, (3) giant cell tumor, (4) reticulum cell sarcoma, and (5) metastatic cancer. More rarely these conditions may be misleading: (1) scurvy, (2) osteomyelitis (pyogenic, syphilitic, and tuberculous), (3)

traumatic and post-traumatic conditions (periosteitis and myositis ossificans), (4) solitary bone cyst, (5) eosinophilic granuloma, and (6) gout and rheumatoid arthritis.[16]

Endothelioma frequently has its origin in the metaphyseal region of a long bone and produces pain, swelling, and disturbed function, but it does not produce tumor bone. The lamellar appearance parallel to the long axis with the tendency to involve the greater extent of the shaft helps distinguish it from osteogenic sarcoma. Also of great importance is the fact that it is rare in persons past the age of 30.

Chondrosarcoma is diagnosed by the presence of a typical cartilage which forms the predominant tissue. Some chondrosarcomas undergo ossification; when this occurs they are frequently confused with osteogenic sarcoma. This tumor occurs at all ages from 10 years of age to 80 years of age and is only slightly less common in the older age groups.

The giant cell tumor begins in the epiphyseal end of the bone reaching the shaft later by progressive extension. It usually occurs in the 20- to 40-year-old group and shows little difference in its incidence in the sexes. The most difficult problem in differential diagnosis exists in the presence of malignant giant cell tumor in view of its resemblance to osteogenic sarcoma.

Reticulum cell sarcoma is a rare tumor which closely resembles endothelioma. Both this tumor and endothelioma are radiosensitive and their response to therapeutic x-ray is significant evidence; however, histologic study is the deciding factor.

Metastatic cancer can simulate osteogenic sarcoma especially when only one area of involvement is demonstrable. Careful search for a primary source elsewhere may make the diagnosis but even if none is found it cannot always be assumed that the lesion is sarcoma. In patients over 30, if more than one area of bone involvement is found, the greatest likelihood exists that the origin is sarcoma. In patients over 40 the likelihood of a suspected osteolytic lesion being metastatic rather than primary is better than two to one.

Treatment and prognosis

The three basic forms of treatment that have been utilized are radiotherapy, radical surgery, and a combination of irradiation and surgery. The treatment of osteogenic sarcoma must be on an individual basis. The character of the tumor, its location, and its size will influence the surgeon as to what therapeutic measures are necessary.

It is difficult to advise amputation in a rapidly growing, highly malignant sarcoma in a young child in view of the particularly poor prognosis; there almost invariably is early metastasis. In general, amputation is used as an attempt at permanent cure or as a palliative measure for relief of pain and to rid the patient of a useless and often infected extremity. Where the procedure is obviously one of palliation, the life expectancy with and without amputation must be considered; if life expectancy is short, amputation probably should not be undertaken. Osteogenic sarcoma is extremely radioresistant, and results obtained solely by irradiation have not compared favorably with those of early amputation.

Preoperative radiation in young children may increase the survival rate. Shanks[24] states that preamputation irradiation to a high level can be expected to reduce the viability of the tumor mass, and thus improvement in the survival figures may occur. Platt's[25] 5-year survival in all types of bone sarcoma with surgery alone was 14.3 per cent. Coley and Pool[26] reported a 5-year survival of 22 per cent. Lichtenstein[16] states that the 5-year survival rate is probably no higher than 10 per cent. Tudway[27] suggests that roentgen therapy is not merely of use as a palliative agent but may have a principal part to play in radical treatment. Cade[28] favored preamputation irradiation. The many published accounts of osteogenic sarcoma with a 5-year survival rate of 20 to 30 per cent or higher are most surely based upon the inclusion in the reported case material of lesions other than osteogenic sarcoma.

The discouraging outlook in treating osteogenic sarcoma is not due to any significant delay in care but to early metastasis even in the face of negative findings at examination. As long as there is any likelihood of cure following amputation and irradiation, limited though it may be, it must be recommended as the only hope for survival known at the present time.

Case report

A 15-year-old white male was admitted to the hospital on November 17, 1954, with the history of pain and swelling in his left knee. Two weeks before, he had received an injury to the knee while playing football; when the pain persisted, he was treated for a sprain by his family doctor. In the hospital, his condition following roentgenographic study was diagnosed as osteomyelitis for which he received antibiotic and immobilization therapy. Since the symptoms persisted, further evaluation was felt necessary, at which time I saw the patient.

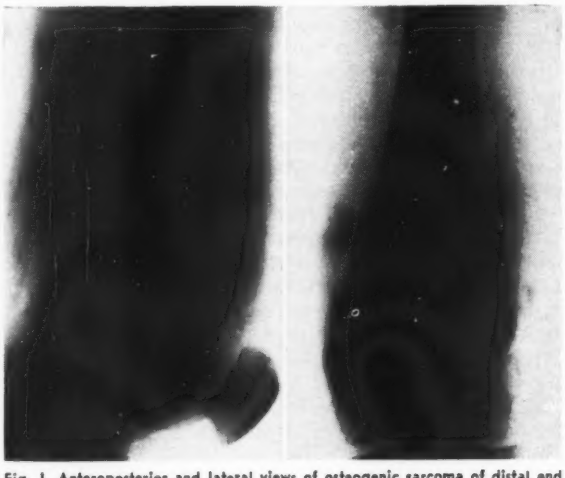

Fig. 1. Anteroposterior and lateral views of osteogenic sarcoma of distal end of left femur on November 18, 1954.

On examination the left knee appeared very swollen and the skin was stretched in appearance with some dilatation of the superficial veins in the knee. The lymph glands in the left groin were swollen and tender to palpation. On November 23, 1954, roentgenograms revealed erosion of the lateral distal left femur cortex and periosteal lifting at the upper limit of the mass. Strands of calcified material were seen radiating outward into the tumor. No invasion of the joint or involvement of the cartilage could be seen. Further roentgenograms of the long bones, pelvis, spine, and skull showed no pathologic change. The urinalysis, serum

calcium, and serum phosphorus were all within normal limits. The serum alkaline phosphatase was elevated to 20 K.A. units. The sedimentation rate was elevated to 30 mm. per hour, and the complete blood count showed slight leukocytosis. There was no evidence of venereal disease.

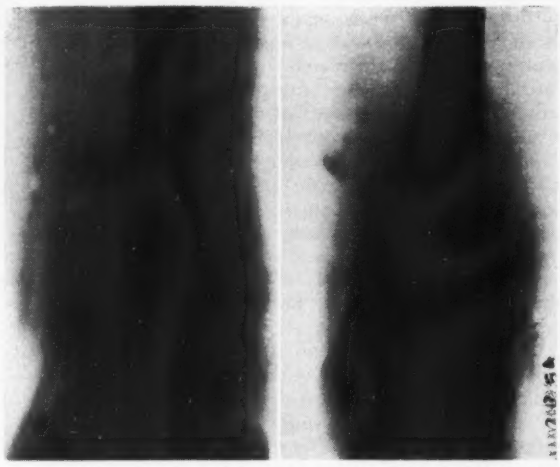

Fig. 2. Anteroposterior and lateral views on November 3, 1954, showing rapid growth of tumor.

A biopsy was performed by the family doctor and the reports from two pathologists gave a diagnosis of aggressive osteogenic sarcoma. At this point the patient was in severe continuous leg pain and had lost over 30 pounds in weight. Roentgenograms of the lungs were negative. Then as a palliative measure for relief of pain and to rid the patient of the early gangrenous, infected extremity at midthigh, I performed an amputation. Within 2 weeks the stump incision was completely healed and the patient was up and around on crutches. At the end of 3 months he returned to school using a prosthesis donated by a local orthopedic brace company. Within 9 months of the amputation the patient had chest pain and cough and soon developed hemoptysis. Roentgenograms revealed pulmonary metastasis. The patient died within 2 weeks.

Summary

Osteogenic sarcoma has been discussed. One case of osteogenic sarcoma occurring in a young male has been presented. The necessity for physical examination, roentgenograms, laboratory studies, and biopsy to make an accurate diagnosis has been pointed out. The types of therapy and prognosis have been discussed.

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Pediatric surgery is growing up

► During the past few decades children's surgery has slowly been emerging as a specialty of general surgery. As progress has been made in the surgical care of hitherto universally fatal diseases and deformities of infants and children, demand has arisen for men trained to apply these advances in knowledge. A generation or more ago it slowly became apparent that sick children required the care of trained pediatricians. In a similar manner the specialties of neurosurgery, gynecology, urology, and a host of others arose in response to need. It now is beginning to be accepted that surgical diseases of infants and children likewise require specialized care. No specialty is fashioned: it grows.—Willis J. Potts, M.D., *Journal of the American Medical Association*, February 1, 1958.

METABOLIC
response to surgical
STRESS

Detection and management*

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(Continued from the February JOURNAL*)*

Abnormal metabolic responses of surgery

Deviations from normal surgical convalescence can be identified by clinical, chemical, and hormonal means, both in the preoperative and postoperative periods. A surgeon who has good insight into normal and abnormal surgical metabolism can convert an abnormal response to a normal one by treatment with certain hormones, and administration of water, electrolytes, and calories in appropriate amounts. However, these must be given at a time in surgical convalescence when they can be effective. There are no pure states; several types of abnormal responses may overlap in the same patient, but observations at the bedside have permitted delineations of abnormal patterns of convalescence. The purpose of this section is to describe these abnormalities and present criteria for their detection.

Moore and Ball[2] have described, from their extensive investigative work, four abnormal metabolic responses into which the great majority of disorders of surgical convalescence can be categorized. These responses are:

1. The excessive metabolic response
2. The extrarenal response
3. The depletion response
4. The hypoadrenal response.

Excessive metabolic response

The excessive response is greater in depth and duration than the normal response. The change from the first stage to the second stage of convalescence is slower, and biochemical and clinical changes are much more pronounced.

Biochemical changes.—

1. Nitrogen: The initial increased nitrogen excretion continues or increases in magnitude beyond the seventh day, and negative nitrogen balance persists.

2. Potassium: Potassium excretion in increased amounts up to 70 to 150 mEq. per day continues, instead of a stepwise dropping from the third day on. Negative potassium balance persists.

3. Sodium: In face of strong positive sodium balance, hyponatremia may be of greater magnitude.

4. Adrenals: The eosinophil count may be low or zero for many days or weeks. Urinary steroid excretion may be high and persist at this level, though this feature has not been established. Hypokalemia and metabolic alkalosis will ultimately develop if this response continues untreated. If extrarenal losses of water, electrolytes, and nitrogen are occurring daily without sufficient replacement, extrarenal response will be superimposed on the gathering metabolic storm.

5. Urine: Volume is usually 500 to 1,000 ml. per day with a median specific gravity of 1.015 to 1.020. Urinary nitrogen and potassium content is high, while sodium and chloride are low.

Clinical description and recognition.—

1. Historically: This response can be anticipated when massive trauma or a prolonged and extensive surgical procedure has occurred.

2. Clinically: The patient's listlessness and apathy persist beyond the fifth postsurgical day, and he fails to have interest in his surroundings, including food.

Peristalsis remains sluggish or absent beyond the fourth to seventh day. Loss of body weight proceeds more rapidly than in normal first and second stages and continues beyond the usual period. Elevation of the temperature persists. The patient lacks strength and initiative to move about; he becomes withdrawn and has a negative attitude toward his outcome; mental depression is prominent, and he refuses visitors.

Oliguria may persist, and the expected diuresis on the fourth to seventh day is absent or not of the predicted volume.

Extrarenal response

This response occurs when losses of water, electrolytes, and nitrogen are through avenues other than the kidneys. These losses may result from intestinal obstruction, diarrhea, vomiting, localization of large quantities of water and electrolytes in peritonitis or thermal injury, massive purulent exudates, or intestinal fistulas. Because of inability to ingest food, the patient will be losing calories as he metabolizes his own tissue; starvation may become a dominant feature.

Biochemical changes.—

1. Nitrogen: The negative nitrogen balance is well out of proportion to the estimated magnitude of the surgery and usually refractory to administration of large quantities of amino acids and nitrogen postoperatively. This is especially true in conditions in which quantities of nitrogen are lost in gastrointestinal discharge, through a burn, by purulent exudates, or into burn edema. The lower intestinal tract contains large quantities of nitrogen, which means that the loss of nitrogen is greater in diarrhea than in vomiting.

2. Potassium: On the day of operation or trauma marked loss of potassium in the urine may occur when the patient is already depleted from extracellular potassium losses. Urinary losses of potassium are abruptly cut back within 12 to 18 hours after trauma, resulting in remarkable renal conservation of potassium even though there have been large extrarenal potassium depletions.

3. Sodium: There may be hyponatremia, but in the presence of extrarenal losses, renal losses of sodium

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are minimal. Urine sodium may be as much as 5 mEq. per day even though extrarenal losses have been large.

In vomiting, hypokalemia with alkalosis is a likely reaction; with diarrhea the tendency is toward metabolic acidosis and more extensive nitrogen depletion. Blood chemical findings will reflect the emphasis of depletions most accurately.

Clinical description and recognition.—

1. Historically: This response can be recognized when there is evidence of any bodily losses resulting in marked dehydration. Thirst may be prominent or absent when there is emphasis on electrolyte losses with the body sacrificing tonicity to maintain volume.

2. Clinically: These patients do not show the extreme listlessness and apathy seen in the excessive response. There is more general interest and desire to get well. The loss of weight is not as great as in the extensive response and is less than that predicted on the basis of sodium loss. Blood pressure is frequently labile, and late in the course veins may appear empty and fill poorly in a dependent position. Signs of potassium depletion may be present if there have been large extrarenal losses of potassium. When extrarenal sodium losses dominate the picture, manifestations of sodium depletion shock may develop with a falling sodium concentration, and rise in serum protein, hematocrit reading, and potassium.

The urine volume varies, but oliguria results from a contracted volume of extracellular water and inadequate perfusion of the kidney with consequent decrease in filtration. At this time the specific gravity will tend to come into isotonicity with plasma, being approximately 1.010.

Depletion response

The depletion response may be manifested in a patient who has chronic illness, who has sustained starvation, or who has sustained an accidental trauma a few days before an extensive surgical procedure is carried out. This response is mostly characterized by a marked decrease in both the magnitude and the duration of metabolic response. A patient with long-standing disease may also be identified by this seemingly minor metabolic change after surgery.

Biochemical changes.—

1. Nitrogen: There may have been negative nitrogen balance preoperatively, and this continues in the postoperative period. This negative balance may be small.

2. Potassium: The increased potassium excretion may only reach 40 to 60 mEq. and then drop off stepwise in 24 to 36 hours, rather than in 72 to 96 hours; potassium excretion rises little.

3. Sodium: There is no marked sodium conservation, nor does hyponatremia occur postoperatively to the extent that it does in a nondepleted patient.

4. Adrenals: Eosinophil count may fall but little.

5. Urine: Oliguria is not as marked, and urine volumes of 1,200 to 2,000 ml. are not unusual on the first postoperative day. This does not constitute a good sign.

Clinical description and recognition.—

1. Historically: A person who has been chronically ill and is inadequately nourished, but has no obvious water, electrolyte, or nitrogen losses, may act on the first postoperative day as though nothing at all had happened. This is not a good sign and should alert the physician for development of complications during convalescence.

2. Clinically: A patient who has a friendly smile and is pleased with himself, as the aged frequently appear after surgical procedures, is a happy sight to see, but the physician should be aware that this is not a good or normal response. Such a patient has a much shorter and shallower adrenergic-corticoid stage; he is liable to develop edema and sodium retention, hypoproteinemia, thromboembolic disease, or wound dehiscence. *The unexpected lack of response is the most striking characteristic of the depletion response.*

Hypoadrenal response

The hypoadrenal response may appear as a complication in the course of the other responses. This response occurs in patients with a transient or chronic adrenal insufficiency of varying magnitudes.

Biochemical changes.—

1. Potassium: The serum potassium may be slightly elevated.

2. Sodium: The serum sodium concentration may be low.

3. Adrenals: A high eosinophil count following surgery, with failure to fall, is helpful in identification. Therapeutic response to cortisone is evidence of this response also.

4. Urine: Oliguria is persistent. A decrease in glomerular filtration rate occurs. There is high concentration of sodium and low concentration of potassium in the urine. Also, low levels of urinary excretion of adrenal degradation products are observed.

Clinical description and recognition.—

1. Historically: A patient who has had prolonged and stormy convalescence following minor illnesses or traumata is suspect. Adrenal cortical insufficiency may become apparent when the patient fails to manifest a normal metabolic response to a surgical procedure.

2. Clinically: This response is also recognized by failure to maintain adequate blood volume, and hence by a decline in blood pressure with postural hypotension or diminution in blood pressure on assuming an upright position. Adequate blood replacement does not seem to influence the blood pressure level. Oliguria is a constant rule. Pigmentation of skin and mucous membranes is a classical sign of a severe hypoadrenalism

The physician must be constantly alert to the clinical signs and biochemical data identifying entry into an anabolic phase and at this point urge even more calotic intake

such as Addison's disease. The blood urea nitrogen may be elevated.

Symptoms and signs of dehydration, nausea and vomiting, and small pulse volume may aid in recognition, along with subnormal temperature, early and later hyperpyrexia, confusion, hallucination, stupor, and coma. Peripheral vascular collapse follows in the untreated patient.

Management of abnormal metabolic responses

Excessive metabolic response

Avoidance of operative trauma to as great a degree as possible constitutes the best therapy. However, whenever operation is necessary, the physician must maintain close control by frequent clinical observations and balance data to enable him to determine the point at which therapeutic interference is advisable.

It becomes important to administer calories and nitrogen in quantity after the fifth day, even though the patient does not exhibit hunger or desire for food, since convalescence cannot be successfully completed unless calories are taken in the anabolic stage. Positive nitrogen balance in the first few postoperative days is not desirable and is practically impossible to attain. Such attempts simply result in further increase in nitrogen excretion rates. In the excessive response stage, it may not be possible to induce nitrogen loading after the fifth day, but increases in calories and nitrogen will allow anabolic events to begin at the earliest possible time. This increase can be accomplished with oral protein, intravenous protein hydrolysates, or tube feeding, using a formula of proper metabolic mixture—about 2,500 to 3,000 calories, 50 per cent carbohydrate, 28 per cent protein, and 22 per cent fat.

Protein hydrolysate alone will not be utilized under the best conditions unless caloric intake is adequate and the metabolic mixture good. The calorie-nitrogen ratio in the postoperative state necessary for adequate utilization is not yet known. It is known that 400 calories per day as 5 per cent glucose in water plus intravenous protein hydrolysate providing 12 grams of nitrogen will be associated with nonutilization of the hydrolysate. For maximal utilization of 12 grams of nitrogen, 2,400 calories are required.[21]

To promote nitrogen loading the use of androgens has been advocated. Testosterone propionate decreases nitrogen excretion and presumably promotes anabolization of nitrogen in the healthy nontraumatized male.[22] There is evidence that the hormone can increase lean tissue mass.[23] The endocrine role it plays in a traumatized patient is not known, and its place in the management of excessive response is not established.

Extrarenal losses of water and electrolytes from the first postoperative day should be replaced daily as accurately as possible, with the amount being determined by careful daily estimates. Fluid lost through sweat, fistulas, diarrhea, vomiting, or localization of large quantities of extracellular water in a "third space," such as in burns or severe peritonitis, would comprise such a category.

In the excessive response, the kidney continues to excrete potassium, even in the face of extrarenal potassium losses. As this proceeds two sodium ions and one hydrogen ion replace three potassium ions lost from the cell; hypokalemic alkalosis results with high serum pH, high bicarbonate, low chloride, normal or low sodium concentration, oliguria, weakness, and abdominal distention. This sequence of events may be anticipated when the patient does not manifest corticoid withdrawal clinically or chemically. Potassium therapy should be started after the fifth postoperative day in sufficient quantity to replace both renal and extrarenal losses. Administration of isotonic saline solution aggravates alkalosis, and a positive sodium balance accelerates its development. Here particularly is a situation where hyponatremia resulting from sodium shift into cells should not be tampered with by attempts to alter it toward "normal."

The physician must be constantly alert to the clinical signs and biochemical data identifying entry into an anabolic phase and at this point urge even more caloric intake.

Extrarenal response

Appropriate replacement of extrarenal losses of potassium, sodium, nitrogen, water, and calories should be prompt and continuous. Some time spent in correcting extrarenal depletion prior to further trauma is always well spent. The patient who sustains extrarenal losses will have an inadequate metabolic response to much less trauma than when his losses are restored. Manifestations of extensive extrarenal depletion after trauma are intense sodium retention, maximally rapid fat oxidation, and minimal mobilization of nitrogen, which may result in or contribute to dehiscence of the wound. To initiate potassium and nitrogen loading may be difficult, the potassium-nitrogen ratio is about 3 mEq. of potassium per gram of nitrogen.

Mixed electrolyte solutions with protein hydrolysates and whole blood transfusions should be used vigorously; these along with continual efforts to initiate intake of food either naturally or by tube feeding constitute bedrock therapy. Treatment should begin within the first 72 to 96 hours after trauma.

A cumulative record of extrarenal losses of water, nitrogen, and electrolytes will aid in satisfactory management. No direct analysis of losses is necessary if reference tables from standard texts are utilized in making "educated guesses." These substances may be replaced by way of avenues appropriate to the stage of surgical metabolism the patient is in.

Depletion response

Prophylaxis provides the best management. Whenever possible one should detect the patient who is likely to undergo a depletion response. The administration of small amounts of compatible whole blood (250 ml. per day) for several days preoperatively will restore blood volume and render the patient better able to produce a more normal metabolic response. Now, it is felt that the intravenous administration of protein hydrolysate before operation is effective and sound. If the body needs nitrogen and a normal metabolic mixture is given with adequate caloric intake, the introduced nitrogen will be utilized satisfactorily; however, this is not true immediately after operation.

Whenever possible, it is wise to delay surgery until repletion of the patient with calories, electrolytes, and water. This will render him better able to initiate and complete normal convalescence. The depleted patient may often be fed on the first postoperative day; certainly protein hydrolysates and parenteral caloric solu-

tions are indicated at least by the second postoperative day to provide high caloric and nitrogen intakes early. Delay of this therapy may result in "seesaw" convalescence.

Sodium-containing electrolyte solutions are not contraindicated, but it should be borne in mind that hypoproteinemia and edema are readily produced in a depleted patient. Electrolyte replacement is not extensive because there has been less change. Early feeding is the keynote in the management of depletion response.

Hypoadrenal response

The stress of surgery and anesthesia may precipitate adrenal crisis in one with latent adrenal insufficiency which is not revealed in the absence of stress. Patients who have chronic complaints particularly referable to the gastrointestinal tract should bring this possibility to mind.

Treatment is directed at the pathologic mechanism involved.[24] Vasoconstrictors are administered intramuscularly or subcutaneously as epinephrine or intramuscularly in the form of venoclysis. For the latter, some prefer norepinephrine which is relatively free of the undesirable effects of epinephrine on metabolism, pulse rate, and the central nervous system.[25] The drug does not increase cardiac output nor stimulate the heart. It increases the diastolic more than the systolic blood pressure which is compatible with the primary increase in peripheral resistance in absence of increased cardiac output. This drug is particularly useful in hypotension due to failure of central medullary neurogenic mechanisms responsible for maintaining peripheral resistance when the blood volume is normal.[24]

The method of treatment is to inject 8 ml. of 1:1,000 solution of L-arterenol (8 mg. in 1,000 ml. of 5 per cent glucose in distilled water); this is infused at a rate which will maintain elevation of blood pressure at a desired level. The blood pressure is observed carefully at 2- to 3-minute intervals until stabilization occurs; then readings are taken every 15 minutes. The rate is checked by frequent counting of drops per minute.[25,26] When central vasomotor control has returned to normal, this drug may be discontinued.

The repair solution is prepared by mixing one part of isotonic sodium lactate solution and two parts isotonic saline in 10 per cent dextrose. To this solution aqueous adrenal cortical extract, 100 to 150 ml., may be added, along with penicillin, 200,000 units (crystalline), and vitamins such as ascorbic acid, 1,000 mg., and thiamine hydrochloride, 200 mg. This requirement of vitamins may be met by adding two ampules of multiple vitamins. Whenever the need arises, plasma and colloidal solutions may be added to the repair solution. The rate of administration of the repair solution is rapid, approximately 30 ml. per kg. of body weight over a period of 2 to 3 hours, so as to stimulate renal flow of approximately 15 to 25 ml. per hour. When this has been achieved other electrolytes may be administered, particularly potassium. Renal function may be somewhat improved by administration of sodium and chloride.

In addition to the aqueous adrenal cortical extract added to the repair solution, 10 to 15 ml. should be administered intramuscularly as early as possible, followed by hourly injections of 5 to 10 ml. until progressive improvement is noted. Then the interval between injections should be lengthened to 2 hours, later to 4 hours, and finally to 6 hours until the patient has been on a satisfactory diet for at least 72 hours.

Cortisone acetate may be substituted for the aqueous adrenal extract in doses of 50 mg. intramuscularly every 6 hours and then gradual reduction of the dose to 25 mg. twice daily until food is being taken well.

DOCA (desoxycorticosterone acetate) in oil should be administered intramuscularly at the moment therapy is instituted. The total dose should be 20 mg. which may be divided into two or three injections at different locations. A daily maintenance dose of 5 mg. should be given thereafter. This dosage may be decreased or discontinued if there are such clinical responses as blood pressure rise or edema formation.

Glucose solutions may be necessary for support of the blood sugar or to provide water. Parenteral fluid administration should not exceed 3,000 to 4,000 ml. in the first 24 hours. However, in severe crises there should be no hesitation about giving 1,000 ml. in 1 or 2 hours. Attempts at oral feeding should be made as early as possible, depending upon clinical response.

Edema formation, stupor, or pulmonary edema are indications to reduce parenteral fluid. DOCA should be discontinued, but adrenal cortical extract dose should be increased to 10 ml. every 3 to 4 hours, or cortisone acetate, 50 mg., may be given intramuscularly each 6 hours.

Abdominal cramps indicate need for more sodium and chloride administration. The patient with this symptom is not thirsty. If he is not improving, he is apt to have sustained hyperpyrexia, oliguria, and coma, and sudden death due to hyperpotassemia may occur. Body temperature rise manifests improvement, but maximum elevations each 12 hours become progressively less as clinical improvement occurs. The patient's response must be the guide for use of repair solutions and hormones; therefore, one should be prepared to after therapy at any time. Morphine is contraindicated in all patients with adrenal cortical insufficiency.

Summary

The normal metabolic consequences of trauma have been divided into four phases of surgical convalescence: (1) adrenergic-corticoid phase, (2) corticoid withdrawal phase, (3) spontaneous anabolic phase, and (4)

The stress of surgery and anesthesia may precipitate adrenal crisis in one with latent adrenal insufficiency which is not revealed in the absence of stress

fat gain phase. These stages have been described in sufficient detail to permit detection by bedside observations and properly interpreted biochemical determinations. In a patient who responds with this normal metabolic pattern, little therapy is necessary.

Detection of a patient unable to carry out a normal metabolic response to surgery can be achieved on the basis of historical information, physical examination, and relatively few simple, properly interpreted laboratory tests. Correlation is good between the underlying metabolic state and its clinical reflections in symptoms and signs.

There are four abnormal types of response which can also be recognized with adequate historical data, interpretations of physical signs, and simple laboratory determinations. These are: (1) excessive response, (2) extrarenal response, (3) depletion response, and (4) hypoadrenal response. These abnormalities in surgical convalescence require therapy. One well informed in the metabolism of trauma can anticipate, recognize, and treat the abnormal response and frequently convert it to a normal convalescence.

Practical bedside information is available regarding total body content of water, sodium, potassium, chloride, and nitrogen. Losses and gains of each can be predicted in various situations. Application of concepts as applied to surgical convalescence has important and practical usefulness in day-to-day surgical practice.

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The ATARACTIC DRUGS*

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THE WORD "ATARAXIA" is defined[1] as "perfect peace or calmness of mood," and is for practical purposes synonymous with the word "tranquility." A group of chemical substances has been introduced into medicine in the past few years under the general classification of "ataraxics." None of the chemicals, strictly speaking, fits entirely into the original definition of the term because all have a variety of side effects that at times become the reason for administering the tranquilizers. For example, chlorpromazine may be administered to combat nausea or to enhance the effect of an opiate. The ataractic drugs, to put it simply, are the newest additions to a long list of chemicals that have been used since before the recording of history to change the quality of consciousness and thus produce a degree of tranquility. Naturally occurring narcotics, euphorics, excitants, and sedatives have been known for centuries. In the pre-tranquilizer era, these drugs would have been classified as hypnotics or sedatives, antispasmodics, or antihistamines. Today, perhaps, the most widely used ataraxics are alcohol and tobacco.

The newer tranquilizers may be divided into four groups, according to Berger and his associates:[2]

1. Compounds derived from phenothiazine
2. Reserpine and related alkaloids such as deserpidine and rescinnamine
3. Compounds derived from diphenylmethane
4. Compounds derived from substituted propanediols such as meprobamate and mephenesin.

Physiologic action

There are a number of pharmacologic tests to prove the effectiveness of the ataractic drugs before

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using them on man.[2,3] Some of these are as follows: a test to determine the taming effect of the drug on monkeys, the use of the isolated rat colon to see if the drug tested will inhibit the contractions of the colon when stimulated by acetylcholine and serotonin, and the test to determine the amount of prolongation of hexobarbital anesthesia. There is a test to determine the amount of increase of strychnine toxicity in animals; all the ataraxics except the drugs derived from substituted propanediols (meprobamate) increase strychnine toxicity to a greater or lesser degree. Another test is the effect on the electroencephalogram in animals; all the tranquilizers produce a high-voltage slow-activity pattern characteristic of sleep.

The mode of action of these drugs is quite obscure. There are theories and fragmentary evidence which are promoted by some investigators and disregarded as theory by others. Several experimental devices have been developed to examine the brain stem arousal center. One device consists of small permanent electrodes placed at various places in the brain of experimental animals so that the areas can be stimulated and measurements of electrical activity recorded. Alterations in effects of stimulating the areas and in recording electrical impulses can be noted after the administration of various drugs.[3]

By these means and other procedures, much information has been compiled regarding the so-called silent areas of the brain. One of these areas is the reticular formation of the base of the brain, which courses through the mesencephalic tegmentum and subthalamus, hypothalamus, and ventromedial thalamus to the internal capsule. This reticular system seems to act as a relay station for impulses arising in the periphery on their way to higher centers. It also is involved in certain automatic functions, such as food satiety, sleep, cardiovascular responses, and the control of the autonomic nervous system and pituitary gland. Alteration of various portions of the ascending reticular formation may alter emotional behavior.

There are two main pathways for sensory impulses arising in the periphery to reach cortical levels. The first is directly from the sense organ to the specific area of the cortex and the second is by the sense organ to the reticular system and then to the cortex. The reticular system produces an alerting effect when it is stimulated, and has been called by some the "arousal center" or "alerting center." Continued stimulation of the arousal center results in anxiety. The ataraxics seem to act to alter the effect of impulses on the arousal center, as well as on the cortex and subcortical areas.

Knowledge concerning the chemical action of ataractic drugs on the brain cells is very fragmentary. Adenosinetriphosphate and adenosinediphosphate function as sources of nuclear energy. In vitro studies of the rat brain oxidative systems have shown that the ataractic drugs, primarily the phenothiazines and reserpine, cause a decrease in the oxidative phosphorylation of the brain tissue. The exact mechanism in this decrease is not known at present.[4]

Serotonin (5-hydroxytryptamine) is present in brain tissue, although 99 per cent is found in the gastrointestinal tract and erythrocytes. The 1 per cent present in brain tissue is bound to some protein substance as yet unknown.[4] It is synthesized primarily from the amino acid tryptophan which contains the indole nucleus. Serotonin affects peripheral tissues as a stimulant. It elevates blood pressure by vasoconstriction, produces tachycardia, and increases smooth and skeletal muscle activity. In the central nervous system, it stimulates the oligodendrocytes to contract and can produce convulsions. It has been labeled a neurohormone. The serotonin level of the brain has been decreased in animals after the administration of reserpine, but it has not been affected by the other ataraxics.

Acetylcholine, epinephrine, and norepinephrine are also utilized by brain tissue as transmitter substances, but probably not to the same extent as serotonin.[5]

In summary, the arousal center seems to be the primary but not the only site of action of the ataractic drugs. Disturbances in the arousal center are alleviated by the effect of the ataraxics on such chemical substances as adenosinetriphosphate and adenosinediphosphate, serotonin, acetylcholine, and epinephrine.

Specific description

It is not possible in this paper to discuss in great detail all the pharmacology of each ataraxic on the market; however, the following is pertinent information about the more widely used of these drugs.

Chlorpromazine (Thorazine) is useful in controlling symptoms of the following emotional disorders: tension, anxiety, agitation, phobias, overactivity, tantrums, insomnia, anorexia, headache, psychosomatic symptoms, nausea, and dysmenorrhea. The dosage for treatment of these symptoms varies from 10 mg. three times daily to as much as 100 or 200 mg. four times a day, depending on the patient's tolerance and response.[6]

Chlorpromazine is used in institutional care for schizophrenia in its several forms: mania, depression, delirium, toxic psychosis, and psychoses associated with organic brain disorders. The usual starting dose of this drug is 50 mg. intramuscularly four times a day and may be increased to 100 mg. every 4 hours. It may be continued for days to months depending upon the patient's disease and his response.

The side effects of chlorpromazine are:[6]

1. Local irritation, both from intramuscular and oral dose. Orally administered antacid medication relieves the gastric distress.
2. Autonomic disturbances, including nasal congestion, hypotension (not affected by epinephrine but by norepinephrine), blurring of vision, and constipation.
3. Interference with central regulating mechanisms, and fever up to 105 F. often associated with eosinophilia.
4. Extreme insomnia and increased restlessness in about 5 per cent of patients on large doses.

The principal complications are jaundice, dermatitis, photosensitivity, agranulocytosis, and toxic confusional states. Parkinsonism appears in about 10 per cent of patients taking 100 mg. or more daily.[6]

Sparine is similar to Thorazine in effect, side effects, and complications. It is very successfully used in controlling acutely disturbed patients, especially alcohol-induced disturbances, such as delirium tremens.[7]

Pacatal is a phenothiazine derivative which has many side effects which make clinical use hazardous.

Prochlorperazine (Compazine) is a phenothiazine derivative which has a dosage schedule of 5 to 40 mg. daily.[7] It is similar to Thorazine without as many side effects and may be used in office practice on patients who are not psychotic or depressed. Its principal side effects are parkinsonism and tremors which resemble parkinsonism.

Trilafon is another phenothiazine derivative which is effective in small doses. Four mg. twice a day is the starting dose and it may be given in doses up to 24 mg. daily. In doses over 24 mg. it may cause parkinsonism.[7]

Rauwolfia serpentina was introduced to the United

States as a hypotensive agent by Wilkins and his colleagues in 1953. It had been used in India for years for hypertension, anxiety, and a number of other illnesses. Since 1954 it has been put out as reserpine (Serpasil), an active alkaloid, widely used for its hypotensive effects. It is used as an ataraxic in schizophrenia, manic-depressive psychoses, the neuroses, and anxiety states. It is contraindicated in depressive psychoses and in peptic ulcer patients. In institutional use the dosage is said to be as high as 240 mg. daily. The usual admission dosage in psychotics is 3 mg. orally and 5 to 10 mg. parenterally with a maintenance dose of 2 to 3 mg. daily after the acute phase of the psychosis is controlled. In neuroses 0.5 mg. daily is the usual dose which is increased or reduced as the response of the patient is noted. The drug is slow in the onset of its action and the therapeutic effect may take several weeks.[8]

The side effects are tremulousness, hypotension, drowsiness, flushing of the skin, fatigue, nasal stuffiness, gastrointestinal symptoms, dizziness, ptyalism, muscular cramps, urinary frequency, edema, increase in appetite and thirst, parkinsonism, dermatitis, ocular symptoms, impotence, lactation in nonpregnant women, menstrual irregularities, anorexia, convulsions, reduced resistance to intercurrent diseases, lethargy, and insomnia.[8] Most of these reactions are mild and are usually self-limited, but occasionally the drug has to be withdrawn.

Hydroxyzine (Atarax) along with benactyzine (Suavitil) and azacyclonal (Frenquel) belong to the group of drugs derived from diphenylmethane. They are rather mild in their action. They do not impair psychic function to any great degree and produce minimal side effects such as fatigue, lethargy, drowsiness, dry mouth, blurring of the vision, nausea, and vertigo. There drugs are well suited for use in ambulatory patients who must carry on their normal occupations. They are of value in obsessional neurotics and in hyperkinetic children, and for mild anxiety, tension, and depression. The recommended dose of atarax is 25 mg. three times daily in adults, although larger doses may be necessary.[7] Suavitil is given in doses of 1.0 mg. to 3 mg. three times daily, depending on the response of the patient. Frenquel is used in doses of 20 mg. three times daily.

Meprobamate (Miltown, Equanil), a derivative of the propanediols, has become a very popular drug.[9] It is similar to mephenesin[4] in some of its effects. It has muscle-relaxant and some anticonvulsant properties, and relieves fear, anxiety, and tension. The chemical seems to act as an interneuronal blocking agent and has a central effect on the thalamus. In higher doses it affects subcortical and cortical levels. It has little effect on the autonomic nervous system and no adrenergic, cholinergic, or histamine effects. It is used in anxiety and tension states, phobias, tension headaches, psychosomatic disorders, insomnia, premenstrual tension, neurodermatitis, and behavior disorders. It is less effective in schizophrenia, post-traumatic neuroses, petit mal epilepsy, muscle spasm, and cerebral palsy. The side effects are drowsiness, urticaria, fever, angioneurotic edema, fainting, bronchial spasm, hypotension, and, rarely, aplastic anemia. The usual dose is 400 mg. to 800 mg. twice to four times daily.[6,9]

Summary

The ataractic drugs are primarily derived from four basic organic chemical types: the phenothiazines, reserpines, diphenylmethanes, and substituted propanediols. Their classification as ataraxics depends on certain pharmacologic tests such as their taming effect on monkeys, the isolated rat colon test, prolongation or hexobarbital anesthesia, and their effect on the electroencephalogram.

The mode of action of these drugs has been discussed with their effect on serotonin, adenosinediphosphate, adenosinetriphosphate, epinephrine, acetylcholine, and norepinephrine metabolism. Individual ataractic drugs along with their uses, dosages, and toxic side effects have been discussed briefly.

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Terminal care

► Prolongation of life, merely for the sake of a brief postponement of death, does not appeal to me. Sometimes it is difficult to know when further treatment becomes useless. On the other hand, there are many times when we do know and can predict the outcome if either of two alternative courses is selected. Typical of this situation is ureteral obstruction in terminal carcinoma of the cervix. Uremia is a common cause of death with cervical carcinoma. Moreover, it represents a gradual fading and dimming of consciousness, and to me would seem to be an easy and painless way to die. Nevertheless, there are those who would perform cutaneous ureterostomy or pyelostomy on such patients. This might prolong life by six months and certainly would restore the patient to consciousness and awareness of her surroundings. But, what does she pay for these six months? At least the terminal two or three weeks will be associated with great pain and any or all of the disagreeable symptoms of late cervical cancer. I would not wish this for a loved one if the alternative were a relatively easy and painless death hastened perhaps a few months.—William F. Mengert, M.D., *Illinois Medical Journal*, September 1957.

Prostatic MALIGNANCY

A review of current concepts on this subject*

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SINCE A DISCUSSION of prostatic malignancy focuses attention on the structure of that gland, I shall preface this paper with a very brief review of the anatomy.[1] The prostate is generally described as having five lobes. For further clarity it may be divided into two portions by an imaginary plane passing through the ejaculatory ducts; the portion behind this plane is called the posterior lobe and the portion in front, the anterior lobe. The anterior lobe forms the roof of the first portion of the urethra. Two lateral lobes are formed by prostatic tissue between the anterior and posterior lobes, and the median lobe is composed of only a small segment of tissue found between the internal urethral sphincter and the verumontanum; this small segment forms the floor of the urethra. The ejaculatory ducts reach the urethra by passing downward and forward through the posterior portion.

The position of the prostate may be further described by its relationship to surrounding structures. The superior surface of the prostate faces the bladder. The inferoposterior surface approaches the rectum, and the inferolateral surfaces rest on the levatores ani. The urethra traverses the area which comprises the junction between the anterior and medial thirds of the gland.

The prostate is encapsulated by a thin membrane and then is encompassed by a fascial bed which is continuous with the upper fascia of the urogenital diaphragm; this latter tissue is firmly anchored to the pubis by ligaments. The posterior portion is spoken of as the fascia of Denonvillier; in this location it forms a barrier between the prostate and the rectum.

Between the prostatic capsule and the fascial bed, there is a plexus of veins and nerves. The prostatic plexus of veins communicates with the deep dorsal vein of the penis, the vesical plexus, and the vertebral vein plexus. The nerve plexus in this same area originates in the hypogastric nerve plexus, and sends some branches laterally to approach the iliac vessels while others extend toward the sacrum and lumbar spine. The arterial supply of the prostate is derived from branches of the inferior vesical and middle hemorrhoidal branches of the hypogastric artery.

The lymphatic drainage is an all-important aspect of any organ as subject to malignant change as is the prostate. In this gland the smallest lymphatics are intimately related to the individual acini of the gland. Slightly larger branches form perilobular networks which communicate with a peripherally located, dense, subcapsular network. The subcapsular area in the posterior and superior surfaces of the prostate is richly endowed with lymphatics. From the subcapsular plexus of lymphatics, drainage is by way of four principal trunks which parallel the arteries of the prostate.[2] These trunks are as follows: (1) The external iliac pedicle arises from the superior portion and the base of the prostate and forms a large single trunk of lymphatics which passes the seminal vesicle on its medial aspect, extends above the terminal segment of the ureter, and terminates in one of the nodes of the iliac chain. (2) The hypogastric pedicle originates as a single trunk from the inferior surface of the prostate. It follows the prostatic artery closely to terminate in a hypogastric node or nodes. (3) The posterior pedicle is made up of two or more trunks arising from the posterior surface of the prostate. These trunks run posteriorly and then turn slightly anteriorly to end in nodes in the area of the sacral promontory. (4) The inferior pedicle passes downward from the anterior surface of the prostate. Upon reaching the floor of the perineum this lymphatic trunk follows the pudendal artery and ends in a hypogastric node near the origin of the hypogastric artery. In addition to these main lymphatic pedicles, other lymphatic branches from the prostate anastomose with branches from the bladder, the rectum, the ampulla of the ductus deferens, and the seminal vesicles.

Malignant changes in the prostate are almost entirely limited to carcinoma; however, sarcomas and rhabdomyosarcomas do occur. Only about 200 cases of sarcoma have been described in the literature, and rhabdomyosarcomas are even more rare.[2,3] Both sarcoma and rhabdomyosarcoma tend to occur in children or young adults, while carcinoma tends to occur in older men. Because of the rarity of sarcomas and rhabdomyosarcomas, the remaining portion of this discussion will be confined largely to carcinoma of the prostate.

The incidence of carcinoma of the prostate increases with age, the average age for occurrence being about 65 years.[2] For prostatic malignancy to occur before the age of 40 years is unusual; however, following the age of 50 there is a steady increase in the number of cases.[3] After the age of 70 years there is a decline in the number of active cases. When it is considered

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It is fortunate that the prostate has so effective a limiting capsule; it is this structure which may check the local extension of a prostatic carcinoma for a rather prolonged period

that a greater and greater percentage of our population is composed of individuals reaching these age brackets, an annually increasing number of prostatic malignancies may be anticipated for many years to come. At present, prostatic carcinoma comprises approximately 10 per cent of all of the malignancies in males and about 4.5 per cent of all cases of malignancy.[2,3]

A remarkable number of prostatic carcinomas are never detected nor even suspected clinically, but are incidentally revealed at autopsy.[4] In other words, the incidence of prostatic carcinoma as demonstrated at autopsy is far in excess of the clinical incidence of active prostatic carcinoma. Using autopsy findings as the criteria, it has been estimated that 14 to 46 per cent of all men over the age of 50 years harbor a focus of prostatic carcinoma which is either active or latent;[5] in other studies the incidence is reported at 10 to 15 per cent.[6,7] The scale increases with the age of the patient, so that the usual finding is that 100 per cent of men over 90 years of age show microscopic evidence of prostatic carcinoma. Yet in no autopsied case was death due to this malignancy; in fact, death due to this cause after the age of 90 is rare. Again using autopsy findings as a basis, it is estimated that only 1 out of 18 patients who have prostatic carcinoma will die directly or indirectly as a cause of that disease. From these estimates, it is apparent that many cases of prostatic carcinoma remain latent and never become clinically active. It is unfortunate that it is not possible at the present time to distinguish between a latent carcinoma and one that is active.

Carcinoma of the prostate almost always arises from a subcapsular site, 95 per cent or more of them originating in this location.[1,2] More specifically, it may be said that prostatic carcinoma occurs more frequently in a subcapsular position in the posterior lobe than in any other location.

On gross examination, the normal prostate is a buff-colored, encapsulated structure which on section presents an alveolar appearance. The cut surface of the normal gland tends to be moist and somewhat lighter in color than the outer surface. In differentiating normal prostatic tissue from malignant areas in the gland it is well to remember that normally the gland does not present a homogeneous appearance. On the other hand, malignant areas in the gland tend to be homogeneous in appearance, and approximately half of the areas tend to be more yellow than normal tissue.[3] Most prostatic carcinomas tend to be moderately indurated or firm, but it is uncommon for them to be stony hard in consistency. Carcinoma of the prostate forms a rather diffuse area with margins that are poorly defined. Large areas of carcinoma in this gland tend to be grayish-white with multiple small yellowish areas.

More than most other organs, the prostate tends to have multiple foci of carcinoma. The carcinomatous prostate gland may be enlarged, normal, or smaller than normal in size.[7]

It is fortunate that the prostate has so effective a limiting capsule; it is this structure which may check the local extension of a prostatic carcinoma for a rather prolonged period. In the posterior lobe Denonvillier's fascia also aids in limiting spread towards the rectum. The capsule itself frequently becomes invaded early, and involvement of perineural sheaths is also a frequent early manifestation. Invasion of local nerves and vessels is rather common because of their location between the capsule and the fascia. Local extension very frequently involves the seminal vesicles, but the urethra is affected much less frequently than some other parts. Involvement of the urinary bladder is generally a late manifestation; however, when this happens urethral obstruction with subsequent hydronephrosis and pyelonephritis may follow. Pyelonephritis is one of the common immediate causes of death in prostatic carcinoma. Approximately half of the prostates showing carcinoma also demonstrate the changes of benign hypertrophy; however, calculi of the prostate are only rarely associated.[2,7]

The lower lumbar vertebrae, pelvic bones, and upper portions of the femora are the most common metastatic sites. In recent years careful examination by some investigators has shown that the ribs are involved with metastasis almost as frequently as are the pelvic bones.[3] The most likely means of spread to these foci is by way of vertebral vein plexus which communicates freely with those veins located between the prostatic capsule and the surrounding fascia. Spread to these foci by way of the perineural lymphatics is also a possibility since these channels are frequently invaded. Distant metastases to the lungs and liver are not uncommon, those of the lungs sometimes being of the lymphangial variety.[3] Lymph node involvement is frequently with the iliac, supraclavicular, aortic, peribronchial, and mediastinal nodes most often found to be affected at autopsy.

The microscopic identification of a carcinoma in the prostate may be quite a problem to the pathologist. A small percentage of prostatic carcinomas are squamous in type; these are easily recognized microscopically. A medullary type, rarely observed, presents little or no difficulty in recognition. By far the greatest percentage of prostatic malignancies are adenocarcinoma. The most undifferentiated adenocarcinomas are readily identified, but a high percentage are well differentiated and as such may approach very closely the normal structure of the prostate.[8] These well-differentiated adenocarcinomas are composed of small acini lined by a single row of low columnar or cuboidal epithelium. The cytoplasm of the individual cells tends to be pale and clear or slightly granular. The nuclei tend to be small, round, and uniform in size and shape.

It is of interest to note that the usual signs of malignancy, such as anaplasia, pleomorphism, and increased mitotic activity, are frequently lacking in carcinomatous prostates, and it is this lack that creates the

problem of recognition for the pathologist. The unusual maturity of the neoplastic cells and their apparent lack of cytologic criteria of malignancy are puzzling features which are not encountered in malignancies of other organs, at least not to the extent that they are in prostatic carcinoma. Since the usual criteria of malignancy are frequently lacking in this condition, it becomes necessary to utilize other pertinent criteria in the study and identification of prostatic carcinomas. The most reliable of these appears to be the deviation from normal architecture rather than a deviation in the individual cells.

Such features of tissue sections are likely best studied under the low power of the microscope where the atypical architecture can be readily compared with the normal acini that may remain present. It may be necessary for the pathologist to study numerous tissue sections before finding a small, occult, differentiated adenocarcinoma. The fact that prostatic adenocarcinoma demonstrates a tendency to extend into the perineural lymphatics very early is a feature which may aid the pathologist. If he can identify such extensions in a well-differentiated adenocarcinoma, which may closely resemble normal tissue, the question of the malignant nature of the tissue is solved. All normal prostatic acini demonstrate a thin fibromuscular sling which surrounds each gland. In adenocarcinoma this sling is lacking, a feature which also aids the pathologist in his diagnosis.[9]

A small carcinoma of the prostate which is not associated with hypertrophy may be extremely quiet and produce few or no symptoms. When the carcinoma is associated with hypertrophy, it is the latter entity which is likely to produce many of the patient's urinary symptoms. The most common symptom in prostatic carcinoma is frequency of urination and the second most common symptom is that of difficult or painful urination. Pain is likely to be present because of the tendency for prostatic carcinoma to invade the perineural sheaths very early in its course. Such pain, sometimes similar to sciatica, is generally referred to the bladder and urethra, the rectum and perineum, the sacrum and gluteal regions, and the legs. Many patients with prostatic malignancy experience this type of pain sooner or later in the course of their disease.[9]

It is unfortunate that early prostatic carcinoma is so insidious. It is for this reason that such a large percentage of patients have symptoms of metastasis when first seen. Extension of the lesion may cause partial obstruction of the rectum and, more rarely, leg edema. When the malignant change is advanced the patient is almost always in considerable pain; pronounced anemia develops; signs of renal insufficiency become apparent as a result of extension to the bladder and ureters; pain is present as the result of bony metastases; and fever may be noted, depending upon the degree of urinary infection.

Advanced carcinoma of the prostate presents no great problem in diagnosis. In addition to pain the patient generally complains of urinary symptoms. Many patients are arthritics, and it is not unusual for the pain to be ascribed to this ailment; with that thought in mind a rectal examination may be omitted and the correct diagnosis missed.

It is this small, occult, prostatic malignancies that are difficult to diagnose. This type of lesion may be altogether asymptomatic, or it may produce only minimal urinary symptoms. A routine rectal palpation of the prostate on all male patients over 50 years of age is highly recommended. If an area of prostatic malignancy is palpated rectally, it is generally found to be a rather poorly defined, nontender nodule in the posterior lobe. A needle biopsy from this site is of value in diagnosis; however, negative results of biopsy study do not necessarily prove the absence of cancer. Exposure of the lesion through a perineal incision with subsequent biopsy may be necessary to demonstrate its presence.

Digital examination of the prostate remains a satisfactory procedure and rates well with certain other procedures in the diagnosis of early prostatic carcinoma. In several series of studies, about 50 per cent of the cases thought to have areas suspicious for malignancy on digital examination proved to be positive for carcinoma through biopsy and microscopic confirmation. Fifty per cent may sound like a poor average, but this figure compares well with diagnosis by some other methods.

Digital examination with biopsy of suspicious lesions using the perineal approach, and subsequent microscopic evaluation of the lesion is the current procedure of choice in the diagnosis of early prostatic carcinoma.

In recent years the examination of prostatic secretions for exfoliated malignant cells using papanicolaou stains has increased in popularity. Some workers have felt that this is a valuable procedure; however, it now appears that such studies give a remarkably high percentage of false negative reports, and in cases of prostatitis a false positive report for carcinoma may be obtained.[10] As a screening procedure this method is extremely costly when one considers the numerous negative cases that must be examined before a positive case is identified. The method does show great promise; perhaps some modified method for collecting the prostatic secretion could be devised to make the procedure more valuable.

It is not unusual for a prostatic malignancy to follow a suprapubic prostatectomy for benign hypertrophy. Apparently the carcinoma arises in these instances from fragments of the posterior lobe that escaped operative

More than most other organs, the prostate tends to have multiple foci of carcinoma. The carcinomatous prostate gland may be enlarged, normal or smaller than normal in size

removal. The eradication of the entire posterior lobe is thus important in all removals of the prostate for any cause.

Roentgenographic examination of the skeletal system is indicated in all cases of possible or probable prostatic malignancy, with particular attention to the pelvic bones, the sacrum, the femora, the lumbar spine, the dorsal vertebrae, and the ribs.

The laboratory examination of most significance in prostatic carcinoma is still the acid phosphatase determination. Much confusion has arisen in the interpretation of this test in connection with this neoplasm. Gutman determined in 1936 that the neoplastic cells of prostatic adenocarcinoma could produce acid phosphatase in the same manner as normal prostatic epithelium.[3] Thus with a great increase in the number of cells producing this enzyme, the level becomes significantly high in some adenocarcinomas of the prostate. It is unfortunate that the acid phosphatase level is not significantly increased until after the neoplasm has extended beyond the confines of the gland itself.[2] Levels of 10 units or above are definite evidence of metastasis even though the metastasis may be obscure and not demonstrable by x-ray. In some cases where there is bone metastasis, only borderline levels of 3 to 10 King-Armstrong units may be found.

It is of interest to note that there has recently been an improvement in the method for determining acid phosphatase which makes it more specific as an indicator of prostatic carcinoma. This new method accurately identifies the prostatic fraction of acid phosphatase, taking advantage of the fact that the activity of the prostatic fraction is inhibited by L-Tartrate. It would be well to mention that blood for an acid phosphatase determination should always be collected before the gland is examined or massaged digitally. There have been instances where manipulation has artificially elevated the acid phosphatase level to a point where the resulting levels were difficult to interpret. Blood should be drawn before or several days following manipulation of the gland.[2]

This short review of prostatic malignancy suggests that this entity remains one of the most difficult carcinomas to evaluate in its early stages. Because of its insidious nature, it becomes necessary for the physician to be constantly alert to its possible existence in all adult male patients, and to use all methods available, poor though some of them may be, for early detection of this menace.

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A modification of the self-retaining O'Connor-O'Sullivan retractor

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THE O'CONNOR-O'SULLIVAN retractor is a very useful self-retaining retractor for both pelvic and upper abdominal procedures. However, in pelvic surgery the blades have often proved inadequate, particularly at the cephalad portion of the wound, where the intestines are to be packed away. Figure 1 shows the retractor and the ordinary blades, (B) and (C).

The small blade (C) is adequate for retracting the bladder. But for the other side of the wound a similar size blade is usually too narrow to keep the intestine from entering the field, even with adequate packing and relaxation. The large, wide blade (B) is satisfactory in an obese patient, but in the average individual it is too long, and too often will rest on the great vessels in the area and compress them, or will catch on the sacrum at the point of curvature.

We have devised a new blade (A) which combines the width of the large blade (B) with the curve and length of the short blade (C). With this blade, it is possible to get excellent exposure, keeping the intestine out of the field with less packing; also, by its position and curve, the blade itself is kept out of the operative field more than were the original blades.

Victory Hospital
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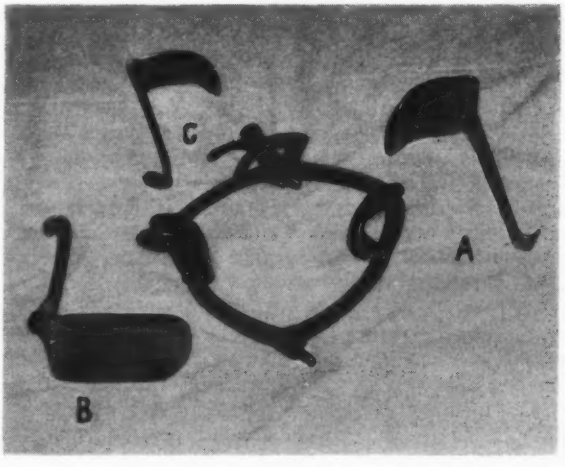
Fig. 1



Selection of therapy in CARCINOMA of the LARYNX*

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FULLY AWARE OF the controversial nature of this subject, I am nevertheless very happy to discuss it. I am sure that radiologists realize that too often the therapy selected for carcinoma of the larynx is dependent in large degree on the consultant selected by the physician.[1-3] If the patient is sent to the laryngologist the treatment selected will be surgical, and if radiation therapy is used at all it will be to treat the inevitable recurrences after inadequate surgery. If, on the other hand, the patient is sent to the radiologist the treatment selected will be radiological, and surgical treatment will be used only to overcome obstruction from edema and to control chondritis and sloughing.[4]

Certainly the best interests of the patient cannot be served if radiation and surgery are considered as competitive methods of treatment. Both specialists must realize, therefore, that a friendly feeling of co-operation and treatment selected impartially and based on their combined clinical experience will best serve the requirements of the patient.

Before any treatment can be selected for a patient with carcinoma of the larynx, certain information must be available.

1. The accurate location and extent of the primary lesion.
2. The extent of secondary invasion.
3. The histopathology of the tumor.
4. The extent of disability that may be produced in eradicating the tumor should be evaluated, judged by the patient's probable ability to be rehabilitated and returned to a useful life.
5. The ability of the therapy selected to eradicate or arrest the tumor at both the primary and secondary sites must be evaluated.

Although the larynx and hypopharynx are easily exposed by the laryngoscope to direct view for purposes of examination and biopsy and even more easily to indirect view by the laryngeal mirror, the inexperienced examiner often fails to make a diagnosis. To the Jacksons'[5] observation that ". . . death frequently lurks below an overhanging epiglottis . . ." it might be added that a positive biopsy can hardly be expected from a larynx that has never been exposed to complete view. The radiologist, therefore, is frequently asked to assist in the diagnosis of cancer of the larynx.

Radiography is essential in any suspected tumor of the larynx and adds much information about the location and extent of the lesion that cannot be determined by even a carefully performed laryngoscopy by an experienced laryngologist. Planographs or body section radiographs are invaluable in visualizing not only the location and extent of the primary lesion but extent of invasion of the cartilage. Planography has replaced phonation radiography and contrast laryngograms at Detroit Osteopathic Hospital. By this method all confusing shadows can be obliterated by the moving tube, and a clear image at a predetermined body plane can be obtained. Not only does planography supplement the diagnostic information gained from direct laryngoscopy and biopsy, but in some instances the planograph will also show subglottic extension that leads to discovery of a small subglottic cancer not discoverable by either indirect or direct laryngoscopy.

It is well known that cancer behaves differently in different areas of the larynx and hypopharynx. Classification of laryngeal cancer is therefore desirable in order to establish a criterion by which to evaluate the lesion and the extent of invasion. No better classification exists at present than that developed by the Tumor Classification Committee of the International Congress of Radiology in Copenhagen in 1953.[6]

Laryngeal carcinoma is divided into three areas of origin of the tumor. Each has four stages of progression, ranging from early to late. The following three types according to location of the primary lesion are recognized.

Type I: Supraglottic—tumors that arise in the ventricles, the false cords, the laryngeal surfaces of the epiglottis, or the walls of the laryngeal vestibule.

Type II: Glottic—tumors of the vocal cords that arise on the free borders of the cords.

Type III: Subglottic—tumors that arise on the subglottic surface of the vocal cord at a distance from its free border.

Stages of involvement and invasion are classified as follows and apply to each of the above types.

Stage I: Limited to mucous membrane; mobility unimpaired; no nodes palpable.

Stage II: Carcinoma infiltrates structures, but within larynx; mobility impaired; nodes not palpable.

Stage III: Lesion extends beyond larynx; nodes palpable but movable.

Stage IV: Lesion very extensive; involves laryngeal and extralaryngeal structures; mobility impaired; nodes fixed.

No fixed rules exist nor can they be developed for deciding what therapy should be selected. This is an individual question that must be solved by free impartial exchange of information based on experience of both specialists in the methods to which they have access.

It was formerly believed that all Stage I glottic tumors, which are early tumors involving only one cord and without impairment of mobility, should be treated by laryngofissure. We now know that these lesions will regress completely under fractionated x-ray therapy with minimal disability to the voice in from 85 to 90 per cent of cases. Such cases, while ideal for laryngofissure or even adequate intralaryngeal surgery, might best be handled by the experienced radiologist, especially if he can use high voltage or supervoltage radiation to increase the depth dosage of radiation with minimal skin reaction.[7]

*Presented at the annual meeting of the American Osteopathic College of Radiology, St. Louis, Missouri, October 30, 1957.

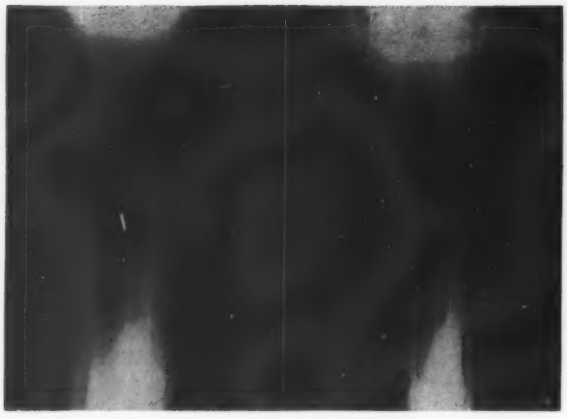


Fig. 1. Planograph of a type II glottic epidermoid carcinoma of the anterior half of the left vocal cord and anterior commissure in a 47-year-old male. Bilateral thyrotomy was performed March 5, 1957, removing the anterior third of the larynx, including all of the left vocal cord, the anterior commissure, and the anterior third of the right vocal cord. The patient has a serviceable voice with good quality and has returned to his previous occupation. Fig. 2. Planograph of a type II supraglottic epidermoid carcinoma of the larynx, involving the left cord and supraglottic area with fixation of the left arytenoid in a 58-year-old female. Total laryngectomy was performed June 6, 1956. The patient developed fair esophageal speech and has returned to full activity as a housewife.

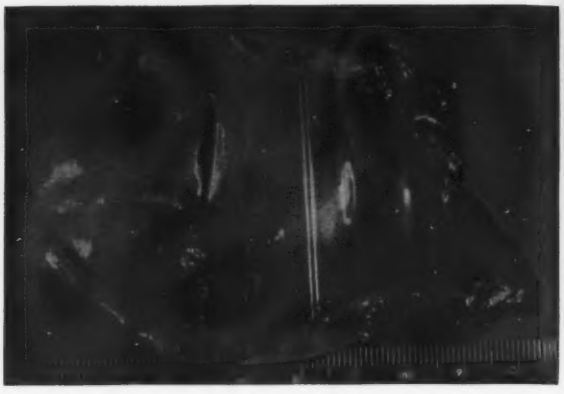


Fig. 3. Operative specimen of the larynx showing type II supraglottic epidermoid carcinoma of the larynx seen in Figure 2.

Laryngofissure can be employed to remove tumors of wider extent and low grade, especially if associated with an inflammatory process or if recurrent.

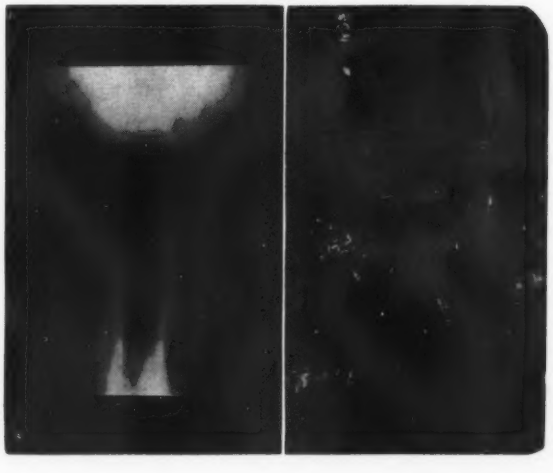
Many new operations now available make it possible to remove the tumor together with a safe area of noninvolved tissue and still preserve function, thus avoiding total laryngectomy.[8] Among these are bilateral thyrotomy (Kemler) for tumors of the anterior commissure and transhyoid pharyngotomy (Ogura) for supraglottic tumors. Many supraglottic tumors such as those of the epiglottis can be completely extirpated during suspension laryngoscopy without resort to open operation. This is true because they are exophytic lesions which fungate rather than infiltrate and grow slowly and metastasize late. Lesions of the arytenoid region and pyriform sinuses, however, are highly malignant and invade early with rapid growth and early metastasis. They invariably require total laryngectomy and neck dissection.

Hemilaryngectomy is another operation which is found most useful in extirpating glottic and subglottic lesions. Extensive unilateral lesions can be removed by this method if the defect is relined immediately by a skin graft to prevent subsequent laryngeal stenosis.

Planning treatment by either radiation or surgery requires a knowledge of the rapidity of growth and invasion in different areas of the larynx. It has long been known that a cancer of the free border of the vocal cord will grow slowly and invade late, whereas a cancer of the cricopharyngeal area or the pyriform sinus grows rapidly with early metastasis. Why this is so is not well understood. Lenz[9] has advanced evidence that the circulatory requirement of the tumor is one of the factors that influence its growth. He has noted that tumors with rich vascular beds also have rich lymphatic networks. Since lymph is propelled through lymph channels only by muscular contraction, an explanation is available for the early metastasis of tumors occurring on richly vascularized beds. Since the free border of the vocal cord is fibrous the blood and lymph supply is poor. Not until the muscles are invaded does rapid growth occur and tumor cells extend through lymph channels because of muscular activity. Conversely, tumors occurring in the cricoarytenoid area or the pyriform sinus are not only richly endowed with capillaries and lymph channels but are also subjected to constant muscular movements that carry tumor cells to lymph nodes where metastasis becomes apparent. For at least two reasons this knowledge is important in planning treatment. First, it is apparent that we must know the exact location and extent of the lesion. Second, since circulation influenced by muscular activity is apparently related to the rate of invasion, we should be able to delay metastasis by putting the part at rest. It is important, therefore, to institute early tube feeding or to perform gastrostomy in a patient with a postcricoid cancer. Since radiation influences the capillary bed it is important to consider preoperative radiation in cancers with a heavy inflammatory overlay or in those that have been subjected to irritation or trauma such as repeated removal of tissue for biopsies.

As newer methods are developed and as a new knowledge[10] is made available the treatment of cancer will become more efficient. Meanwhile, full use of present knowledge and methods can benefit the patient only if the radiologist and laryngologist with the assistance of the family physician, pathologist, and internist co-operate in the preoperative evaluation. Only

Fig. 4. Planograph of a type III glottic carcinoma of the larynx involving the left vocal cord with fixation of the left arytenoid in a 56-year-old male. Laryngeal cartilage is invaded, and there is early metastasis to the left cervical lymph nodes. A wide-field total laryngectomy with left neck dissection in continuity was performed on May 10, 1957. Esophageal speech was poor because of a language barrier; the patient has returned to former activity. Fig. 5. Operative specimen of the larynx showing type III glottic carcinoma of the larynx seen in Figure 4.



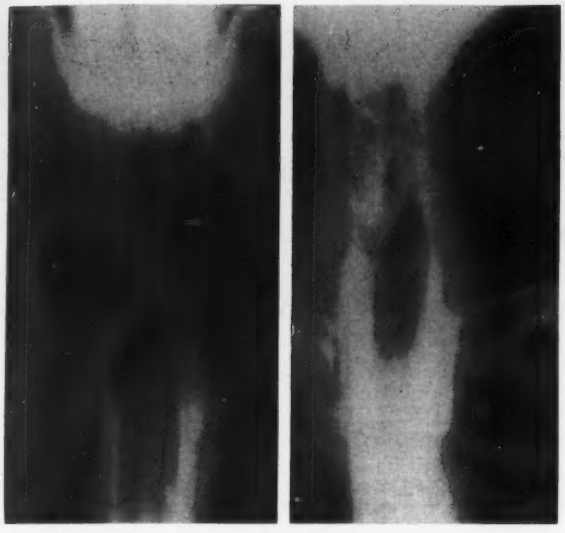


Fig. 6. Planograph of a type II subglottic epidermoid carcinoma of the larynx involving the left vocal cord and subglottic area with fixation of the left arytenoid in a 46-year-old male. Total laryngectomy was performed on June 26, 1957. The patient developed exceptionally good esophageal speech and returned to his former occupation as an executive in a large insurance organization. Fig. 7. Planograph of extensive type IV subglottic epidermoid carcinoma of the larynx with bilateral cervical lymph node metastasis and early obstruction of the larynx in a 64-year-old male. Between September 1956 and April 1957, 11,000 R x-ray therapy was given through two lateral and two anterior ports. In June 1957 an orderly tracheotomy was done for relief of increasing laryngeal obstruction. In November 1957 a gastrostomy was done to overcome tracheoesophageal erosion which permitted swallowed liquids to trickle into the trachea. The patient died December 13, 1957, from erosion of cervical vessels.

by a pooling of such specialized knowledge as it relates to the individual patient's problem can therapy for cancer of the larynx be selected and planned to meet the patient's requirements.

Summary

1. Radiology and surgery must not be considered as competitive methods of treatment.

2. Neither the radiologist nor the laryngologist is able to evaluate the patient completely without the other.

3. Planographs are essential in visualizing the location and extent of invasion of the growth. They often succeed in finding subglottic cancer that is not seen by either direct or indirect laryngoscopy.

4. Knowledge of classification of cancer of the larynx into three areas of origin—supraglottic, glottic, and subglottic—and four stages of progression is important in planning therapy.

5. Early cancer of one vocal cord without impairment of mobility, formerly considered a surgical problem, can be treated successfully by radiation with minimal disability and loss of function.

6. New operations can extirpate cancer and a safe area of normal tissue in part of the larynx without need for total laryngectomy.

7. Circulation in the tumor bed and its relation to growth and invasion must be taken into consideration in planning treatment.

8. A co-operative preoperative evaluation of the patient's requirements by the radiologist and laryngologist with assistance from the family physician, pathologist, and internist is essential.

2406-08 David Stott Bldg.

Acknowledgment

I am indebted to Dr. Edward P. Small of the Department of Radiology at Detroit Osteopathic Hospital for preparation of the planograms shown in Figures 1, 2, 4, 6, and 7.

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Explaining to the patient

► We as physicians have a rightful pride not only in the remarkable advances in medical knowledge during the past forty years but also in the fact that the fruits of these advances have been made available to an ever-increasing proportion of the general population. But we must not become complacent. Although the nonmedical public is fully aware that it is receiving better medical care today than at any time in the past, important areas of dissatisfaction still exist. . . .

Perhaps the commonest criticism of the physician of today is a seeming lack of sympathetic interest in his patients. The public is cognizant of the advantages of scientific diagnosis and treatment, but it takes these more and more for granted and desires in addition personal attention comparable to that given by the family doctor of the past. Because there is a desire in each of us to be recognized as an individual, no one enjoys being looked upon solely as an example of a particular disease or syndrome. Furthermore, people come to their doctors because of concern about their symptoms, and their anxiety is seldom allayed unless the physician takes the time to hear the complete story, perform an examination, and then explain the illness and its general prognosis.—A. Carlton Ernstene, M.D., *A.M.A. Archives of Internal Medicine*, November 1957.

CASE REPORT: Rupture of the stomach in the newborn

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GASTRIC RUPTURE OR perforation in the neonatal period is a surgical emergency that unfortunately is too frequently not suspected until postmortem examination. Failure to consider the possibility results in a delay in the diagnosis that contributes to the very high mortality even when surgical repair is attempted. If these babies are to be saved, the perforation must be promptly recognized and repaired.

A recent review of the literature concerning spontaneous rupture of the stomach in the newborn infant discloses that this entity was recognized as early as 1846[1] when 7 cases were reported in the German literature. In 1943, Herbut[2] summarized the English literature and reported 16 cases, none of which was successfully treated and only one of which was found to be due to a congenital defect in the stomach musculature.

Many explanations have been advanced as to the cause of gastric perforations. Potter[3] mentions intracranial hemorrhage, trauma from the passage of gastric tubes, and multiple emboli resulting from sepsis originating in the umbilical stump. Kiesewetter[4] cites Cushing's association between intracranial lesions and gastric ulceration and perforation and Russell's theory of hydrostatic pressure on the intestines at time of birth. He also refers to Miller, who demonstrated the excessive gastric acidity present at birth, and to Selye and others who have shown the effect of excessive adrenal cortical stimulation on the production of gastrointestinal ulcerations and perforations, as well as the role anoxia plays as a trigger in stress and adrenal stimulation with subsequent gastric ulceration and perforation.

By 1955, Braunstein,[5] Griffin and Griffin,[6] Northway, DeLano, and Claytor,[7] Potter,[3] and Ross, Hill, and Haas[8] had reported a total of 10 cases of gastric rupture occurring through an area of congenital muscle deficiency. The case to be reported is believed to fit into this category.

Prior to 1950, no newborn with surgically repaired gastric rupture had survived. Leger and his coworkers[9] reported the first survival in that year. Kellogg, Abelson, and Cornwell[10] in 1951 reported a second survival, and in 1954 Northway, DeLano, and Claytor[7] reported the third infant with a perforation of the stomach to survive surgical closure. Since that time, Arnold[11] and Vargas, Levin, and Santulli[12] have closed gastric ruptures in infants who survived the operation. In less than a half dozen of all the infants who survived was the operation for spontaneous rupture specifically due to congenital defect in the gastric musculature. In these, diagnosis depended on macroscopic examination; no report of survival can be found in which gastric tissue was submitted for microscopic study.

Following is the report of a case of spontaneous perforation of the stomach in a newborn infant who survived surgical correction of the defect. It is felt that this case is unique in that the infant was a premature twin who had undergone an exchange transfusion for ABO incompatibility prior to the spontaneous rupture of the superior anterior surface of the lesser curvature of the stomach.

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Case report

A male Negro twin, weighing 4 pounds 3 ounces, was delivered 19 minutes after his twin brother, who weighed 4 pounds, 3½ ounces, on September 15, 1957, at the Philadelphia Osteopathic Hospital. These infants were born after 8 months of pregnancy. The mother was 30 years old, gravida 4, para 2. Serology was negative. Presentation in both cases was cephalic, and both babies were delivered spontaneously after a 14-hour labor. The infant with which this report is concerned did not breathe spontaneously and required 2 minims of caffeine and sodium benzoate intramuscularly to establish respiration that then continued to improve in a normal manner. Gastric suction was not employed. He was placed in an Isolette and during the first 24 hours appeared physically normal. He voided several times and passed four meconium stools. Mucus was regurgitated occasionally, and at times he appeared tremulous. When the infant was less than 48 hours old, his skin became severely jaundiced. All activities including sucking were normal. Serum bilirubin after 53 hours of life was 22 mg. per 100 cc., hemoglobin was 12 grams, the hematocrit reading was 48.5 per cent with 1 per cent normoblasts and 0.3 per cent basophils. The baby's blood was type B, Rh positive. Findings from the Coombs test were negative. The mother's blood was type O, Rh positive. Twenty-four hours later, at the age of 77 hours, the infant's serum bilirubin was 24 mg. per 100 cc. and his blood was exchanged with 500 cc. of type O, Rh negative blood. The transfusion was completed without mishap, and the next 24 hours were uneventful. The child took nourishment well and eliminated normally. Postexchange serum bilirubin was 19 mg. per 100 cc. and on the following day was 10 mg. per 100 cc.

On the morning of the second day following the

transfusion, the baby was observed to have severe abdominal distention, a cardiac rate of 200 per minute, and dyspnea. No formula had been regurgitated, and he continued to pass soft yellow stools. The stomach was intubated for the first time, and a small saline enema was given. Neither of these procedures altered the abdominal distention, and roentgenograms of the lung and abdomen were taken (Fig. 1). The lungs appeared negative for active pulmonary disease, but the abdominal films demonstrated pneumoperitoneum, and a fluid level was seen in the transabdominal projection (Fig. 2). Surgical consultation was requested, and 12 hours from the time distention was first noticed an abdominal laparotomy was performed.

A midline incision was made from the xiphoid process distally to the right of the umbilicus. Midway between the xiphoid and umbilicus, a left horizontal incision was carried to midway between the nipple and anterior axillary lines. Air was found in the peritoneal cavity. The entire bowel was explored from the rectosigmoid junction cephalad to the ligament of Treitz. No site of perforation or leakage was found.

Air was injected through the intragastric transnasal catheter and the bubble was seen between the under surface of the liver and the stomach. Exploration of the stomach demonstrated a line of rupture beginning on the lesser curvature just below the esophagogastric junction and traveling downward to the middle of the body of the stomach. It then curved over the anterior surface to the greater curvature. Starting at the site of the rupture on the greater curvature, the entire line of rupture was closed with a series of interrupted inverting 4-0 silk sutures. This closure was reinforced with a second row of running 4-0 silk sutures. The abdominal wall was closed with through-and-through 3-0 Dermalon sutures.

On the morning of operation blood studies showed: hemoglobin 14.5 grams; hematocrit reading 46.5 per cent; 4,700,000 erythrocytes, of which 1 per cent were normoblasts; and 6,300 leukocytes, of which 11 per cent were nonsegmental neutrophils, 16 per cent segmented neutrophils, 71 per cent lymphocytes, and 2 per cent monocytes. After operation findings were: hemoglobin 10.5 grams; hematocrit reading 39 per cent; 3,700,000 erythrocytes, of which 1 per cent were normoblasts; and 9,600 leukocytes, of which 8 per cent were nonsegmented neutrophils, 35 per cent segmented neutrophils, 56 per cent lymphocytes, and 1 per cent monocytes.

Prior to operation and for 5 days thereafter the baby was given sulfadiazine, 50 mg., intramuscularly, daily and chloramphenicol, 80 mg. intramuscularly, every 12 hours. Fifty cc. of isotonic saline solution with 200 cc. of 5 per cent glucose in water was given intravenously throughout operation and daily thereafter for several days. Since the infant's cardiac rate continued at 200 per minute, Digoxin, 0.05 mg., was given subcutaneously and repeated twice at 8-hour intervals, after which he was maintained on 0.03 mg. daily. Following operation, 10 cc. of 10 per cent calcium gluconate were added to the intravenous solution. Ascorbic acid, 100 mg., intramuscularly daily, was ordered and 40 cc. of whole blood were given. Oral feedings were withheld until normal bowel function was re-established.

Fig. 1. Supine and lateral recumbent exploratory films showing evidence of pneumoperitoneum. Stomach contains air.

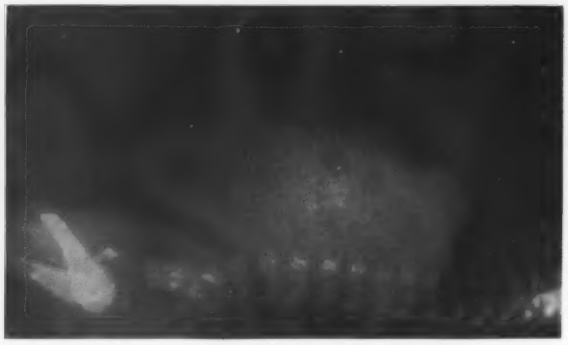

Fig. 2. Transabdominal film with patient in dorsal recumbency, showing large collection of free air within peritoneum.

On the first postoperative day the child's progress was satisfactory, although the abdomen maintained its firm distention. Urine was passed normally. The above therapy was continued except that calcium was not repeated.

On the second postoperative day the cardiac and respiratory rates returned to normal. A dry yellow stool was passed that on testing was found to contain a trace of blood, as did the green fluid collected from the stomach. A transfusion of 40 cc. of whole blood was given, and the intravenous feeding was changed to 200 cc. of Aminosol. Excrements tested later this day were negative for blood and remained so thereafter.

Feedings of one-half ounce of 10 per cent glucose every 2 hours were started on the third postoperative day after a gentle saline gastric lavage. Another 40 cc. of whole blood were given, and the Aminosol was continued. Osteopathic manipulative therapy for spinal relaxation was begun on this day, and Digoxin dosage was discontinued.

On the fourth postoperative day treatment was the same as that of the previous day, except that no further blood transfusions were given. Diluted Similac formula was alternated with glucose feedings. All feedings were retained from the onset. Clinically the child responded quite satisfactorily.

All parenteral administrations were discontinued on the fifth postoperative day. The formula was increased in strength and amount to fulfill the infant's demands, and oral vitamin therapy was instituted.

On the twenty-eighth postoperative day the infant was discharged, weighing 5 pounds 9 ounces. The surgical wound was completely healed.

Discussion

A review of the literature on defects in the gastric musculature with spontaneous rupture reveals some interesting facts. There are few more than a dozen cases that can be included in this strict classification of gastric rupture in the newborn. Of these, most subjects were premature males. To judge by cases in which race was recorded, the condition is found most frequently in the Negro and is associated with other congenital anomalies such as diverticula, clubfoot, and mongolism.

The clinical picture of gastric perforation in the newborn has been variable. The literature shows that some have suffered from natal and/or neonatal anoxia, some have been cyanotic from birth, and others have had evidence of systemic infection. However, the infant may be asymptomatic except for feeding problems that can vary from that of the infant who nurses poorly to that of one where vomiting has been severe since birth or suddenly develops just prior to the rupture. The only clinical manifestation reported in all cases has been abdominal distention with its associated respiratory embarrassment. Since the distention is usually severe, diaphragmatic excursions are limited, resulting in early dyspnea and cyanosis. Consequently, abdominal distention in the newborn should arouse suspicion of a ruptured viscus and warrants an immediate roentgenologic survey for pneumoperitoneum. If findings are positive, rapid surgical exploration and the judicious use of fluids, electrolytes, whole blood infusions, and antibiotics are indicated.

While the cause of gastric rupture in the case presented cannot be definitely stated, it would seem that either adrenal cortical stress following the exchange transfusion and/or congenital defect in the musculature of the stomach might explain the pathologic conditions. Since no tissue was taken at the time of operation and the infant survived, this latter theory can only be conjectured.

Since surgery is the only therapy that can insure the survival of these infants, early diagnosis will minimize the danger from shock and peritonitis and enhance the chances for a favorable outcome. The degree of dehydration and shock present will depend upon the amount of extracellular fluid lost into the inflamed peritonieal cavity and distended bowel. Mechanical efforts to relieve the distention are seldom rewarding and only delay definitive diagnosis.

Summary

A case of spontaneous gastric rupture occurring in a premature newborn infant following an exchange transfusion and believed to have resulted from a defect in musculature of the stomach is presented. The infant survived operation and made an uneventful recovery.

The importance of recognizing abdominal distention in the newborn as a possible sign of ruptured viscus warranting immediate roentgenologic study of the abdomen is stressed. The importance of proper fluid and electrolytic support before, during, and after surgery has been emphasized, along with the value of antibiotics, vitamins, and osteopathic manipulative therapy in completing the management of such cases.

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The
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Editorials

A coin has two sides

A coin has two sides and words have many meanings. The first fact we accept as a matter of course; more often we do not admit the second as a possibility. In all history, nations have risen by words and fallen through their misunderstanding.

This month's lead article, "Symposium on Physical Medicine and Rehabilitation," was given special position by THE JOURNAL's editors because it carries a meaning for osteopathy and the osteopathic profession far beyond the ordinary definition of its key words—*physical medicine* and *rehabilitation*. Some readers, repelled by the title of the symposium, will pass it by, certain of the words' *denotation*. Thereby they will miss the *connotation* of two words dynamic enough to reorient medicine, but so deeply grounded in their popular meanings that it may take a hundred years "to get them off the ground"—thereby to make them conceptually effectual.

Why is this true? The proverbial cat is less hard to kill than men's preconceived ideas. To medical readers generally, "physical medicine" means assorted modalities, and is facetiously classified as "gadget" medicine. "Rehabilitation" means exercises; as one correspondent put it: Therein the doctor's role is to aid the paraplegic to support his arm until the prescribed exercises enable him to support it himself. Blow up these two ideas beyond their true worth and one has a specialty—Physical Medicine and Rehabilitation. Medical physicians reveal their rating of the *idea* of physical medicine by utter disregard; osteopathic physicians scorn physical medicine as the medical profession's *ersatz* osteopathy, and witheringly refer to the low state to which osteopathy would fall were the profession to have real consort with the idea of physical medicine. Or they talk in terms of "a steal," as if truth were a private thing. For different reasons, members of both professions have acceded to their few fatuous colleagues—let them play in their little specialty field; it does have a limited usefulness. That the ideas of physical medicine and of rehabilitation may represent two universal medical concepts—two among few such concepts, ecological medicine is another—has not yet permeated either medical or osteopathic thinking, education, and practice.

And yet there is evidence of fresh thinking—and not as a question or an issue, the matter is far from that proportion—in both healing art professions. The October JOURNAL referred to this thinking in a comment on the first endowed chair of physical medicine and rehabilitation in America, set up recently in a medical school, and the program in P.M. and R. in operation in one osteopathic college. The Symposium that opens this month's JOURNAL is the first examination of the role of physical medicine and rehabilitation by a representative cross-section of the osteopathic profession.

The November 1957 JOURNAL reflected this fresh thinking when it called the fundamental issue before the profession "neither one of how to recover the golden age of osteopathic legend nor how to find the way that leads to an osteopathic or medical Utopia." Rather it saw the issue as how best "to work toward a solution of the problems of osteopathic medicine today as they arise within the total structure of medicine." One factor of the solution was defined as physical medicine, understood for what it is—conceptual medical thinking, whether it be exercised in the profession of osteopathy or that of medicine. This editorial, therefore, is a plea for a re-examination of the meaning of the key words that occupy the discussants presenting the Symposium. These are words by which osteopathy could get itself understood in today's world.

By happenstance, following World War I, the terms "physical medicine" and "rehabilitation" got used together before either could be analytically defined. The meaning of these two words became severely limited in the minds of doctors. Their coupling (physical medicine *and* rehabilitation) added difficulties just as the coupling of x-ray diagnosis and x-ray therapy has created problems far from being solved in those fields of medicine. Before physical medicine and rehabilitation became understood in relation to medicine generally they had had a fence built around them; they became specialty words, Physical Medicine and Rehabilitation.

The causal factor that segregates medical concepts into specialties has been quite recently called the "overweight of knowledge" by a medical educator. This overweight was directly responsible for the creation of the specialty of Physical Medicine and Rehabilitation before these words got themselves understood conceptually. They became largely specialized technics before they were understood as ideas. Thereupon their specialty use took the words out of general circulation; while growing richer in significance to their proponents, they became poorer in concept to all others.

This is not to decry P.M. and R. as a specialty, or any specialty of medicine. It is merely to point to a reality: the division and compartmentalization of medical knowledge to its undoing in meeting man's health needs.

The specialty connotation of physical medicine and rehabilitation was discussed editorially in the June 1955 issue of THE JOURNAL. Therein it was pointed out that the establishment of a specialty college in P.M. and R. in osteopathy was another step in the profession's attempt to meet its challenges. Readers interested in bringing their thinking up to date about this part of the problem should refer to the editorial for the facts; much more they should read carefully a lead article in the June 1956 issue, by Dr. W. W. W. Pritchard, entitled, "The Role of the Specialist in Physical Medicine and Rehabilitation in the Practice of Osteopathic Medicine Today," and the article immediately following, by Dr. J. M. Andrews, "Physical Medicine as a Specialty." Such a review would do more than any other one thing to make understandable the position of today's osteopathic leaders—their growing appreciation of the overall significance that physical medicine and rehabilitation as concepts hold for medicine in general and osteopathic medicine in particular.

There exists the absolute necessity of separating the term "physical medicine" from its denotation as a specialty—to free it from what has been aptly called "the Babel of specialties." Only thereby would it be possible to understand the term "physical medicine" within its comprehensiveness. Both the terms "physical medicine" and "rehabilitation" need to be reminted in all of our minds, to emerge semantically bright and shining. For words, like coins, can be reminted.

We have already examined one side of the coin. It carries the familiar specialty design that is legal tender in the world of medicine, Physical Medicine and Rehabilitation, slight as is its circulation. The unfortunate fact remains that the obverse of the coin is rarely turned up. Turned, the design is a general one and comprises two terms and their explanation: *physical medicine,* meaning the use of physical agents for diagnosis and therapy, and *rehabilitation,* meaning all the procedures that may be helpful to the patient and his family, now and at any time. Both terms have been clearly defined in the Symposium by several discussants.

It is this side of the coin that should be used for circulation in the world of medicine generally by all persons responsible for medical care. It is not to be limited in its use to any one group of physicians, be they generalists or specialists. The future of the discipline of medicine as one of the great sectors of man's knowledge applied to more complete living, as is true of law, theology, and the sciences, rests in the universality of its concepts.

Medicine's overweight of knowledge has brought about its hyperspecialization, and the ensuing multidiscipline has resulted in fractionated medical care. This result is far from what the creative minority of medical thinkers envisage as "comprehensive," "total," or "great" medicine, the medicine of tomorrow. Physicians can never operate holistically and ecologically until all of medicine's universal concepts have been reabsorbed into its body—to vitalize it. The doctor and the profession, individual and aggregate, whose range of vision stops short of this, are neither ambitious to contribute to the ultimate good of people nor capable of anticipating medicine's future.

It is to this exact purpose that the participants in the Symposium have directed their thinking; if unconsciously and without plan, then the more splendidly. It is indicative of a trend toward better understanding of the richness of the whole of medicine and the abundance that it could offer to modern man.

The effect of the Symposium when carefully read is to raise curtains and open up vistas. Its participants would deny the right of any group to arrogate, appropriate, pre-empt, and usurp medical knowledge. Here is recognition that conceptions of disease are as old as man's history; the methods used to combat disease, equally old. The Symposium comes through as a relational thing, so that osteopathy's connections with the past and the future are made organic, not merely verbal. It is high time that this be done.

Earlier in this statement it was pointed out that medical learning has become top-heavy, so that medicine generally is overwhelmed. Yet it avoids simplification as man once avoided the pox. Terms and definitions have become distinct entities, existing for their own sake and bearing no coordinated and connected relationship to a whole. And medical thinking has lost its fluidity.

Thus it has become difficult for many of us to accept the simple statement that physical medicine is a concept that formulates physical agents as fundamental to the diagnosis and treatment of disease, that physical medicine cuts across the entire field of medicine. All of this must be accepted before the specialty can function fully in either profession. And all of this must become widely known, the lag caught up, before osteopathy itself can become understood or widely known, for what it actually is.

As a matter of fact, practitioners of modern medicine think of physical medicine as a specialty in which they have little concern. Practitioners of osteopathy fail to sense in physical medicine conceptual medical thinking, genetic to osteopathy itself. Further, we miss an analogy that is obvious—the basis of modern pharmacology is scientifically theoretical; it is not merely the practice of drug administration. Modern pharmacology is conceptual medical thinking, involving another universal concept in the diagnosis and treatment of disease. So conceived, both physical medicine and pharmacology have root connections with all basic medical and physical sciences. Similarly, osteopathy. Viewed historically in relation to the total discipline, medicine, osteopathy's creative contribution is to its physical

medicine phase. When the contribution is analyzed, it will be found to include *theory*, the role of the musculoskeletal system and its abnormalities (lesions) in human health and disease, and *practice*, structural diagnosis and osteopathic manipulative treatment.

There are critical readers who will take the above statement and others out of context to prove to their satisfaction that such reasoning equates osteopathy with physical medicine. Thereupon, they will exclaim that the lesser (physical medicine) is made to contain the greater (osteopathy), and how can a part contain a whole? Carefully analytical and logically-minded readers will reply that the context does not even imply that osteopathy or osteopathic medicine is limited or was ever limited to a single concept.

The immediate call upon us is to identify ourselves for ourselves, to mark out our own goals and justify them. This we must do in order to identify ourselves to other professions, societies, and groups, thereby to make our major purpose understandable to society as a whole. More than a half-century of misunderstanding must be wiped out. The problem is a complex one, full of ambiguities, paradoxes, and contradictions. The miasma will not be dissipated by wishful thinking or simple statements. Neither will it be resolved by inept arrogation of universal concepts; whether the arrogation is by a tremendously influential body of dominion and power or by a small and comparatively unproved group, it is of the same category. The question that is put to us today as a profession is a caustic one. Let us put it to ourselves; it will seem less condemning.

Has the time come in osteopathy when both as physicians and as a profession we are ready to put aside our prejudices, our foregone conclusions, or assumption of universal concepts? If it has, we are able to go much farther than organized medicine has gone thus far, or seems willing to go.

Our beginning would be simple: recognition of the fact that an osteopathic manipulative treatment given by a doctor of osteopathy is the employment of one of the agencies of physical medicine. That such treatment involves special skills, that hitherto were not known, is true. But to deny that manipulation is physical medicine on a historical basis would be similar to denying that ancient Egyptian physicians practiced a form of surgery and were skilled.

To make such a simple acknowledgment is to get rid of special language; to eliminate jargon, like Latin in a modern prescription; and to have done with the mysterious, the esoteric, and the appearance of profundity, attached to osteopathy by a voluble minority of its proponents.

There are those who will be disturbed by a historical identification of one phase of osteopathy with physical medicine and the abandonment of the special language applied to it. Thereby, they will say we shall lose our "distinctiveness," our "separateness," and our "independence." Do we mean that by being "distinctive" that for over 60 years we have employed "osteopathic treatment"—meaning manipulation—in the care of a good many human ills and have found that in certain conditions and cases it is a marvelously useful thing? So what? Let us claim neither too much as we were once prone to do, nor too little, as we are now inclined.

Let us say emphatically and fearlessly that we have demonstrated clinically that there are conditions in which there is "no substitute" for manipulative therapy, just as there are others in which it seems to play little or no part. Our reminted coin, however on its obverse, reveals that osteopathic manipulative treatment is a form of physical medicine, one of the oldest forms of diagnosis and therapy known to man. So admitted, we have denied nothing of osteopathy's worth, its special skills, and its highly developed technics. We are only being intelligible to get ourselves understood outside our own circle. And we are also being totally factual. We point out that we are not "mad" at anyone. We lay emphasis on the fact that today we are prepared to bring physical medicine out of the limbo into the common light of day—not as *the* healing principle or *the* concept, but as a universal one, buried and forgotten except for relatively small and new groups of specialists in both healing professions. Furthermore in this matter we can speak as the one profession that for 60 years has recognized the maladjusted musculoskeletal system as a significant factor in the impairment of health. Likewise we have established the fact that for an equal period we have successfully employed a form of physical medicine in the treatment of maladjusted structure—osteopathic manipulative treatment. These claims are legitimate and of them we have the right to be humbly proud.

This plea for correct identification of every aspect of osteopathy is not only that we get our profession identified to our friends in the medical, scientific, and social world, but that we no longer confuse our own student-physicians. They must come to see themselves not only as physicians in the general and proper sense of the word, but as exponents and conservators of physical medicine exemplified in the osteopathic profession. Therein are opportunities to develop and contribute that are not present in the older profession of medicine. Today's able young students can quickly grasp the fact that as physical medicine is improved and developed, the healing art professions will get closer to an effective management of the problems of chronic invalidism and eventually its prevention. They will see that there are insights in osteopathic medicine and strength in its organized profession not to be found elsewhere. They will find themselves challenged to advance these insights and to become skilled in their operation. Therein a second profession of medicine exists not for its own sake but for the added service it can render.

THE JOURNAL can lend no greater emphasis to its examination of the other side of the coin than to repeat itself:

> Physical medicine has become a challenge to the osteopathic profession to contribute its knowledge, experience, and wisdom gained through the years. Here is a stone which the builders have hitherto rejected. It could be put at the head of the column. Osteopathy is challenged to help place it there. . . . The accomplishment of our destined purpose lies within our hands.

These are some of the reasons that the Symposium, as an insight into the profession's thinking today, is one of the most significant articles that has been published in THE JOURNAL in many years.

Notes and COMMENTS

Who sets policy?

THIS QUESTION is occasionally asked about the policy of the editorial department and its publications. It is best answered by first asking the question: Who sets the policy of the American Osteopathic Association? Basic policy is made by the A.O.A. House of Delegates; occasionally the House determines specific policy, but generally it leaves instrumentation of basic policy within the direction of the Board of Trustees. Generally the Board determines working policy. The Executive Secretary is the responsible officer of the Association in directing and coordinating activities of the various societies, groups, and agencies, and their personnel at the national level.

Editorial policy is determined by the A.O.A. Editor, working within A.O.A. basic policy established by the House and the specific policies enunciated by the Board, and the directives of the Executive Secretary, interpretive of the actions of House and Board.

It is the responsibility of the Editor to conform official publications to A.O.A. basic policy in all matters, and to specific policy when it has been stated. Within these limitations, the Editor establishes editorial policy and may express, if need be, an opinion on matters on which no official position has been taken. Editorial opinions are an editor's interpretation of general policies applied to specific matters. Therein lies the sharp distinction between an official position of the Association stated editorially and an editor's opinion on matters on which no official position has been taken. The latter is an interpretation of a specific matter within the broad principles and general policies of the Association. Such an opinion is an individual application of fundamental philosophy and practice. An editor's opinion is never more than an individual's opinion, but it is that of an authentic and responsible person. Editorial prerogative, which has a historical and logical basis is jealously guarded by every editor; otherwise official bodies would need only technical editors concerned with production, and acting as a mouthpiece for these bodies. Yet an editor worthy of the name never forgets the limitations imposed on him, just as he expects the governing body which he represents to respect his intelligence and judgment. Editorial freedom is freedom with responsibility—serious responsibility. The position of an editor demands an individual capable of maintaining that kind of balance.

This is a brief answer to the question of who sets editorial policy. Ultimately, as in every section of a democratic society, policy is determined by those who elect governing bodies. This is true of the nation, the state, and its units; and it is equally true of such voluntary membership agencies as the American Osteopathic Association.

"Exceeding wise, fair spoken, and persuading"

"HE WAS A SCHOLAR, and a ripe and good one; exceeding wise, fair-spoken, and persuading": No better words could be found to characterize the late Dr. L. van Horn Gerdine—with this his former students, and they were many over many years, would agree. Death came to him December 22, 1957, at 84, as it should to all men, as a little thing and naturally, for he was in good health and in active practice until the Day itself.

Of particular interest to future historians of the osteopathic movement, and especially of its beginnings, will be the typology of the individuals generative to it, of whom Dr. Gerdine was a prototype.

That strong, able, and highly intelligent men were attracted to osteopathy in its founding days is a thing natural to all reform movements, and osteopathy began as reform, medical reform. The condition of medical education, the standards of medical care, and the capacity of men attracted to the medical profession in America were not matters for pride at the turn of the century. There were striking exceptions that only proved the rule. The new profession, however, proved a challenge to mature, thoughtful, and educated men, and more than a relative number responded. Even among these L. van Horn Gerdine was outstanding. Harvard (M.A) for the humanities (he was a descendant of two of its presidents); Rush Medical, then the highest ranking professional school west of the seaboard for medicine; graduate work at Johns Hopkins; and 3 years of disciplined study abroad at the universities of Berlin, Munich, Heidelberg, and Vienna; this was the training program of an individual whose natural superiority was inclusive. He had previously received a D.O. degree from the Boston Institute of Osteopathy.

Physician, practicing psychiatrist, educator, college administrator, and a natural leader of able men, Dr. Gerdine would rate a rare person in any period. Richly endowed, he returned the riches given him by the profession first to make him a physician, multiplied beyond count. But what is written here is not done in tribute. It is to point to the fact that the gift of creativeness is not to be surface-mined.

Young osteopathic physicians and student-physicians should also know that high scholarship and full learning characterized many of their profession's founders. It is a fact that among their number were many eligible to be counted within "the society of learned men."

The young physician moved today to enrich and enlighten himself scholastically has created no new precedent in his profession, he but maintains its tradition. Let him have no pride. He who would become a master of the art of living, as did Dr. Gerdine, must begin early and never count the cost. Thereby are debts repaid.

One thing counted

READERS WISHING the biographical details on the life of Dr. Louisa Burns who died in California on January 19, 1958, will find them recorded in the March FORUM. Those who were privileged to hear Dr. Burns speak briefly and without a note before the opening session of the Fifty-Fifth Annual Convention of the American Osteopathic Association, Milwaukee, 1951, will remember it as a quietly dramatic moment. It was not her last spoken word to the profession she had served so long, but it was obvious to her listeners that she intended it as a final estimate of her own life and work. THE JOURNAL, later, and within another context, made this comment[1] on her remarks:

> A year ago, from the summit of the years, an individual who has spent her life in osteopathic research said to the profession that she did not know how much or how little of the truth about osteopathy had been established—but that [to her] only one thing counted: to continue the search no matter where the search might lead. This is no ordinary goal. Only those can press forward to it who have put aside sectarian and partisan faiths, and who know no dogma. It is a way of intellectual doubt admitting only verifiable knowledge. It is not the way of revelation; the uncritical enthusiast will not travel it, and the authoritarian disdains it. It is the way of scientific method. Organized medicine moves forward upon the course only falteringly; organized osteopathy has done no more. But it is not what the future will bring to us that will determine our historic destiny. It is what we shall bring to the future.

One who had worked with her in her later years and who knew her well has said that it is within such thinking that she would wish to be remembered. The statement is repeated here as the tribute of THE JOURNAL to a life that never looked back, but always forward.

1. Editorial: Charism. J. Am. Osteop. A. 51:491-493, June 1952.

"Raising the levels of wellness"

"RAISING THE LEVELS of wellness" is the title of an article of special interest to osteopathic physicians reprinted in THE FORUM for March. Those who have not yet read it should earmark the article for careful study. It is further evidence of the advanced medical thinking that is being done by a creative minority in the field of medicine, medical science, and the social sciences that are related to medicine. The point of view is a conclusive one of its author, Halbert L. Dunn, M.D., Chief, National Office of Vital Statistics, who has emphasized repeatedly in other contexts, that the time has come for a scientific study on what is meant by health and how it is lost or maintained.

The approach to health is almost entirely a negative one. Health is the mere absence of disease, in the minds of physicians generally and of laymen. The central position of modern medicine is almost totally remedial and curative. Its preventive aspects are largely confined to "the employment of so-called specific agents to prevent specific diseases caused by specific living agents." And that leaves the practice of medicine essentially curative. In the summary of his article, Dr. Dunn calls attention to the real significance of the concept of "wellness": "That the disciplines of medicine and public health have before them the possibility of developing a *second major axis of interest,* akin to the long-standing one of interest in sickness—an axis which will be oriented toward defining and raising levels of wellness." (Italics supplied.)

We are indebted to the Editor of the *Journal of the National Medical Association* in which "Points of Attack for Raising the Levels of Wellness" was first published, and to its author, for permission to reprint the study in THE FORUM.

Current technics of sterilization

ON APRIL 1, 1958, the Seton Hall College of Medicine and Dentistry will present another in its series of talks on current technics of sterilizing hospital supplies and medical equipment. These talks are presented by outstanding authorities in their fields. The April lecture will be given by E. H. Spaulding, Ph.D., Professor of Bacteriology, Temple University, Philadelphia. The series has been established under a grant by Becton, Dickinson and Company. The lectures are open to all practicing physicians, hospital personnel, and members of allied sciences. Another lecture is scheduled for October 14, 1958, and to be given by Carl W. Walter, M.D., surgeon, Peter Bent Brigham Hospital, and Associate Clinical Professor of Surgery, Harvard Medical School. Osteopathic physicians and hospital personnel are invited to attend these lectures through the courtesy of Charles L. Brown, M.D., Dean, Seton Hall College of Medicine and Dentistry.

Labor and Great medicine

LABOR'S INTEREST in medical care and the definition of the quality of medical care, as noted above, are examples of what the late Alan Gregg termed in one of his last books, "Challenges to Medicine," as "great medicine"—medicine greatly conceived, greatly challenged, and afforded a great response by its practitioners. The student physician of today as the physician of tomorrow may well find himself a part of a profession called to new heights and broader services than he

dreams of in solo practice on a fee-for-service basis. The future doctor who hopes to achieve greatly will find that he needs much more preparation than is afforded by his mastery of certain skills and technics, fundamental as is that kind of preparation to the physician. The medicine of tomorrow will not be practiced adequately nor satisfactorily by little men possessing still slighter vision.

The new FORUM

THE TRANSFER TO THE JOURNAL of all reporting on activities of the American Osteopathic Association has enabled its editors to alter THE FORUM entirely to a news magazine of the organized profession's affiliated societies and groups. Of these, there are more than fifty. From now on there will be no duplication of material, in the two publications.

Activities of A.O.A. volunteer workers and of the Headquarters staff are now carried wholly in the section of THE JOURNAL devoted to these happenings and to a presentation of A.O.A. purposes and policies. Any accounting in THE FORUM of osteopathic activities that appear to be national in character are described from the point of view of the particular affiliated group that is concerned, and not from that of the Association itself. Although THE FORUM no longer carries editorials, its production is entirely governed by the working policy of the editorial department.

Evidence of the degree to which THE FORUM has been made a publication for affiliated societies of the Association is shown on the masthead of the March issue, listing the contributing editors thus far officially appointed by each one of the A.O.A. affiliated societies. The list is not complete because some groups have failed to name a contributing editor.

THE FORUM has come to represent a cooperative group activity whose foundation is adequate communication between a given group and the periodical's editors. As yet the communication is quite incomplete. Most effective is the interchange between the National Auxiliary and its various branches and THE FORUM editors; next in line are the divisional societies and the College of General Practitioners. Osteopathic colleges as a whole appear to rely largely on the communication they establish through direct contact with their alumni rather than any genuine effort made to inform the profession nationally through THE FORUM of their purposes and plans. Specialty colleges tend to restrict their news to their annual program meetings. Few use THE FORUM as a method of reaching their membership, or what would seem more important, to explain to the profession at large their purposes as a teaching body without a physical plant. Many district and local groups —there are more than 250 of these—submit copy regularly indicating an awareness that they constitute the ground of the profession and do not wish to be overlooked.

There is no affiliated group that should not identify itself to the profession. Lacking the strength afforded by sheer numbers, the osteopathic profession can compensate by developing the strength of cohesiveness. The profession's tendency to individualize itself now in groups or societies may be an inheritance from the days when the profession itself was composed of individuals with no great sense of collectivity or need for collective action. Such a sense is developed with maturity. It is a state that sociologists, the experts on social organization, term "institutionalization." Then the body travels on its own momentum, has a life of its own, and is actually an entity no longer dependent for life and vitality upon individuals.

Organized osteopathy now has an official newsmagazine. It is entering a period of trial to determine its actual worth to all the components of organized osteopathy. If THE FORUM proves to be valuable to various groups so that full use is made of it, it may be assumed that it will be continued as a publication of the Association—but only if its need is made manifest.

Notes in briefer form

WIDESPREAD investigations of possible biochemical factors in mental illness are being pursued by grantees in institutions across the country. Research involves drugs, both as therapeutic agents and as tools for research. Congressional appropriation alone amounts to $2 million. These drugs are now classified as "psychopharmacologic" agents; the field of research is termed "psychopharmacology." ¶The Seventh Revision of the "International Classification of Diseases" is now ready for distribution. This study of morbidity and mortality sells for $3.50 for the two volumes. Checks should be made payable to the Public Health Conference on Records and Statistics, c/o Department of Health, Education, and Welfare—NOVS, Washington 25, D.C. The revision is an indispensable reference document for every hospital library. ¶The Cancer Chemotherapy National Service Center of the National Institutes of Health, Bethesda, Maryland, has signed a contract with Chas. Pfizer & Co., under which the company will test its antibiotic filtrates and other organic compounds against cancer. More than $1 million will be spent during the first year of operations. ¶The Public Health Service recently reported that a Census Bureau survey indicates that there are 45 million Americans under 40 who were not vaccinated against paralytic poliomyelitis. Of them, 15 million are children. ¶The National Health Council has announced the election of the U.S. Office of Education to advisory membership and the National Nephrosis Foundation to active membership. N.H.C. agency membership now stands at sixty-three. ¶A recent acquisition of the A.O.A. library is "Die Osteopathie, Manuelle Wirbensäulentherapie." This manual was originally published in French under the title "L'Osteopathie une Nouvelle Methode Clinique et Therapeutique." The author is Dr. Robert Lavezzari of Paris. The book which is paperbound and 144 pages in length was purchased in Vienna and presented to the A.O.A. by Dr. John P. Wood of Birmingham, Michigan.

MESSAGE FROM THE PRESIDENT OF THE A.O.A.

▶ My meeting with the College of Osteopathic Obstetricians and Gynecologists in Denver in February was a good one all the way around. First, it was the group's largest meeting in point of numbers; secondly, the program was one of which the group and our profession can be proud. One had only to listen to the discussions to find out that these men were talking about problems that they were meeting every day and to know that they were bringing today's best known technics to their solution.

Several questions, however, spring up in my mind. What does osteopathy (or medicine) definitely know about the clinical effects of a disturbed musculoskeletal system on the health of a pregnant woman? That pregnancy takes a health toll has never been denied. And I am sure many D.O.'s—particularly those long in practice—could immediately make a good case for the usefulness of manipulative care during pregnancy. That is an old story, more often heard in the past than today, and one unquestionably true. But testimonials are not enough, whether from doctors or patients. They do not meet today's demands for facts gained through controlled experiments by researchers. I suppose medical scientists would say that the question calls for fundamental research by biophysicists before the question can be answered. But that would put the cart before the horse. Has present-day clinical observation established the existence of structural problems in the pregnant woman? Are we thinking in structural terms to the degree that our clinical observation and conclusions are valid?

Another question occurred to me. Pathologists, medical and osteopathic, agree that on the basis of tissue examination too many normal uteri are being removed. Experienced, conscientious, and patient surgeons point to serious functional problems of the female pelvis for which they have found no help for the patient except through hysterectomy. Rightly they ask what can be done for their patients and point out that a careful follow-up often disproves the pathologic findings. Could it be that there are musculoskeletal factors of which we are not aware in gynecologic cases? There must be men among our own group of specialists who are thinking about this possibility. Is it too soon to look to them for an expression of this thinking?

There are indications in medical literature, slight as they are, that this kind of thinking is being done in small areas of the medical profession. It is being expressed in old words that are used in fresh ways: exercise, rehabilitation, physical medicine as a method of diagnosis and of treatment, consideration of the whole body (certainly that means its mechanics), and the effects of stress, physical or mental. These indications should not disturb us. We should be encouraged that we have able fellow-travelers. None of this is said in criticism of any body or any group, unless it be self-criticism that takes in every man of us.

I want to talk with you about a problem that is not one merely to think about but also is one to act on. And almost everybody admits it as such. Its study has been ordered by the House and the Board. It has to do with the Annual Convention of the American Osteopathic Association and the annual meetings of affiliated and specialty groups. First, I ask you to read the news about a meeting of the Committee on Format and Scheduling of National Conventions held in Chicago on February 1 to study the problem. It was made up of more than twenty representatives from various groups. The A.O.A. Editor advises me that the facts will be found on page 487 of this JOURNAL.

With the meeting as background, I point out to you that of fifteen national bodies that hold annual program sessions, more than ten have no meeting ties with the A.O.A. Five meet as a clinical assembly sponsored by the College of Osteopathic Surgeons. Even this assembly is as cut off from A.O.A. annual conventions as that of any group that meets by itself, such as the College of Obstetrics and Gynecology.

This break-up is not a *new* point for discussion. As early as 1947 the House went on record that something must be done to get the whole profession together; this was said again in 1951. It was not until 1953 that representatives of affiliated societies, the specialty groups, and A.O.A. officials got together in a meeting. They met and agreed that they should meet again, but said nothing about when. Our publications have discussed this matter for years. In THE JOURNAL as late as December the question was put directly to all concerned: How can a small profession maintain an effective organizational unity not only in name but in reality?

And I ask you. How can we? I have learned one thing in the last 7 months. This fractionation is no longer a question. It is a problem. We must find the solution, and "we" means the profession. The House-Board Committee after a year's study said February 1 that there is only one answer: We must find a way to

combine the national program meetings of all groups into a united clinical assembly in which each participating organization presents its own program. I am told that the over-all plan is much like the highly successful annual clinical assembly of the College of Surgeons and four other groups. Such a plan would also call for an annual *organizational* meeting composed of the representatives of all groups convening at the same time as the A.O.A. Board of Trustees and House of Delegates. That would mean two meetings a year.

What has come out of the February 1 meeting? For the first time, something hopeful. Group representatives have agreed to bring the matter before their official bodies, reach some kind of decision, and meet with the Committee within a year. For the first time, I believe we have gone beyond wishful thinking. We can only pray that with time and patience we will get something accomplished. I feel that the February meeting of the Committee on Format and Scheduling was adjourned with most of those attending convinced that this 10-year question dare not be brushed under the rug longer and that we would look forward to a day of action.

Carl E. Morrison D.O.

306 Granite Exchange Bldg.
St. Cloud, Minnesota

DEPARTMENT OF PUBLIC RELATIONS

C. D. Swope, D.O., Chairman

Bills in Congress

▶ The second session of the 85th Congress convened January 7, 1958. Bills introduced during the first session, but not enacted, remain pending for action during the second session.

H. R. 9610—Mr. Anfuso, of New York. Provides for establishment in the Department of Defense of a United States Science Academy to train selected men and women, to be known as cadets, in the field of science or engineering for service as officers or employees of the United States.

H. R. 9611—Mr. McCormack, of Massachusetts. Establishes a National Science Council to coordinate federal programs in the fields of science and technology.

H. R. 9630—Mr. Bennett, of Florida. Provides for deduction for income tax purposes of contributions to the United States for use in providing scholarships for students of science.

H. R. 9634—Mr. Boggs, of Louisiana. To expedite the utilization of television facilities in our public schools and colleges and in adult training programs.

H. R. 9635—Mr. Brooks, of Texas. To provide for a national program of science scholarships, and the establishment of a program of loans to educational institutions to aid in providing adequate science facilities.

H. R. 9643—Mr. Collier, of Illinois. Amends Selective Service Act to provide for deferment of school teachers and persons studying to become school teachers.

H. R. 9672—Mrs. Kee, of Virginia. To provide for establishment of a United States Academy of Science.

H. R. 9685—Mr. Long, of Louisiana. To create a United States Science Academy.

H. R. 9689—Mr. MacDonald, of Massachusetts. Amends the Outer Continental Shelf Lands Act to provide revenues shall be used as grants-in-aid of primary, secondary, and higher education.

H. R. 9692—Mr. Martin, of Massachusetts. To provide for a scholarship program to aid in maintaining and strengthening United States leadership in certain fields of science and technology.

H. R. 9712—Mrs. Rogers, of Massachusetts. To establish a United States Armed Forces Science Academy.

H. R. 9725—Mr. Sieminski, of New Jersey. To establish a national program of scholarships to be awarded annually by the Secretary of Health, Education, and Welfare in the fields of science designated by him as fields of science in which there exists a national shortage of professionally trained individuals, and awarded by the Secretary to individuals selected by him solely on the basis of their ability, as established through competitive examinations conducted by him.

H. R. 9822—Mr. Fogarty, of Rhode Island. To provide for holding a White House Conference on Aging to be called by the President before December 31, 1958.

H. R. 9835—Mr. Roosevelt, of California. To extend OASI coverage to doctors of medicine.

H. R. 9843—Mr. Taylor, of New York. Amends Selective Service Act to provide for deferment of college students enrolled in science courses and to provide that such students may satisfy their military obligation by employment in certain defense industries.

H. R. 9845—Mr. Thompson, of New Jersey. Amends Internal Revenue Code to increase the amount of charitable contributions made by a corporation which may be allowed as a deduction where all or part of such contributions are made to educational institutions.

H. R. 9864—Mr. Merrow, of New Hampshire. Amends Social Security Act to remove limitations upon the amount of outside income which an individual may earn while receiving OASI benefits.

H. R. 9899—Mr. Baker, of Tennessee. Amends

Internal Revenue Code to allow deduction for certain amounts paid by a teacher for his further education.

H. R. 9902—Mr. Boggs, of Louisiana. To establish a United States Academy of Science.

H. R. 9905—Mr. Dingell, of Michigan. To authorize the Secretary of Defense to grant scholarships and fellowships in scientific fields to promote the defense and security of the United States.

H. R. 9918—Mr. Long, of Louisiana. To establist a Federal program of financial assistance to students selected by the National Science Foundation in the field of physics, chemistry, mathematics, or such other fields of the physical sciences as the Foundation may designate.

H. R. 9928—Mr. Rogers, of Florida. Amends Internal Revenue Code to allow a deduction for certain amounts paid by a teacher for his further education.

H. R. 9931—Mr. Sikes, of Florida. Amends Internal Revenue Code to permit school teachers and administrators to deduct expenses incurred by them in attending classes to acquire additional training or education.

H. R. 9971—Mr. Ikard, of Texas. Amends Internal Revenue Code to provide that an individual may deduct amounts paid for tuition, fees, and books to certain public and private institutions of higher education for his education or the education of any of his dependents.

H. R. 9981—Mr. Winstead, of Mississippi. Amends Internal Revenue Code to permit school teachers and administrators to deduct expenses of attending classes to acquire additional training or education.

H. R. 10002—Mr. Fino, of New York. Amends Social Security Act to increase amount of an individual's earnings which may be counted as the basis for his benefits under OASI.

H. R. 10026—Mr. Sikes, of Florida. Amends Internal Revenue Code to allow a taxpayer an additional exemption for a dependent child who is a student above the high-school level.

H. R. 10030—Mr. Teller, of New York. Amends Internal Revenue Code to allow deduction of certain expenses incurred by taxpayer for education of a dependent.

H. R. 10067—Mr. Rodino, of New Jersey. To provide for the establishment of a United States Science Academy.

H. R. 10068—Mr. Rodino, of New Jersey. To provide for loans to needy and scholastically qualified students, to continue post-high-school education in certain fields of science designated by the U. S. Commissioner of Education.

H. R. 10104—Mr. Broomfield, of Michigan. Amends Internal Revenue Code to allow a deduction from gross income for certain amounts paid by a teacher for his further education.

H. R. 10105—Mr. Cederberg, of Michigan. Amends Social Security Act to increase the amount of outside earnings permitted without deductions from OASI benefits.

H. R. 10159—Mr. Griffin, of Michigan. To establish a Commission of the Establishment of a United States Academy of Science.

H. R. 10170—Mr. Boggs, of Louisiana. Amends Social Security Act to remove limitation upon the amount of outside income which an individual may earn while receiving OASI benefits.

H. R. 10178—Mr. McDonough, of California. Amends Vocational Rehabilitation Act to provide additional Federal support to carry out adequate demonstration programs for the vocational rehabilitation of the physically handicapped.

H. R. 10180—Mr. Sikes, of Florida. Amends the National Foundation Act of 1950 to provide scholar ships and fellowships for engineering and science students.

H. R. 10208—Mr. Riehlman, of New York. Provides for coordination of Federal programs in the fields of science and technology and creates National Science Council.

H. R. 10224—Mr. Adair, of Indiana. Establishes in the Department of Defense a United States Academy of Science and Technology.

H. R. 10229—Mr. Broomfield, of Michigan. Establishes a Commission on the Establishment of a United States Academy of Science.

H. R. 10278—Mr. Kearns, of Pennsylvania. Educational Development Act of 1958.

H. R. 10279—Mr. Frelinghuysen, of New Jersey. Educational Development Act of 1958.

H. R. 10290—Mr. Udall, of Arizona. Amends Outer Continental Shelf Lands Act to provide that revenues under the Act shall be used as grants-in-aid of primary, secondary, and higher education.

H. R. 10293—Mr. Dawson, of Illinois. To establish a National Scientific Research Reserve Fund.

H. R. 10364—Mr. Westland, of Washington. Amends Internal Revenue Code to provide that an individual may deduct amounts paid for his higher education, or for the higher education of any of his dependents.

H. R. 10381—Mr. Elliott, of Alabama. National Defense Education Act of 1958.

H. R. 10394—Mr. Matthews, of Florida. Amends Internal Revenue Code to eliminate the provisions which presently restrict the deduction for medical expenses to those exceeding 3% of the taxpayer's adjusted gross income.

H. R. 10404—Mr. Williams, of Mississippi. Amends Federal Food, Drug and Cosmetic Act by prohibiting new food additives which have not been adequately pretested.

H. R. 10454—Mr. O'Konski, of Wisconsin. To establish a scholarship program to train scientists and technicians and provide that scholarship beneficiaries shall be obligated to serve in the Armed Forces upon completion of their education.

H. R. 10456—Mr. Price, of Illinois. Amends the National Science Foundation Act of 1950, to establish scholarships and fellowships.

H. R. 10464—Mr. Van Zandt, of Pennsylvania. Amends the National Science Foundation Act of 1950 to establish scholarships and fellowships.

H. R. 10499—Mr. Rains, of Alabama. Small Business Tax Adjustment Act. Includes voluntary retirement plans similar to Jenkins-Keogh Bill (H. R. 9 and H. R. 10).

H. R. 10503—Mr. Rhodes, of Pennsylvania. Amends Internal Revenue Code to allow a deduction from gross income for certain amount paid by a teacher for his further education.

H. R. 10506—Mr. Scott, of Pennsylvania. Amends Internal Revenue Code to increase exemption allowed a taxpayer for a dependent from $600 to $1,000 for any taxable year in which such dependent is a student attending school at the college level or above.

H. R. 10532—Mr. Dellay, of New Jersey. Social Security Amendments of 1958. Provides OASI insurance against costs of hospital, nursing home, and surgical service.

H. R. 10543—Mr. May, of Connecticut. Amends Internal Revenue Code to allow a taxpayer a deduction for expenses paid by him for his education or the education of his spouse, or any of his dependents.

H. R. 10566—Mr. Hagen, of California. Amends Internal Revenue Code to allow a deduction from gross income for certain amounts paid by a teacher for his further education.

H. R. 10578—Mr. Dingell, of Michigan. Amends Social Security Act to provide a more liberal definition of the term "disability" with reference to disability insurance benefits and disability freeze.

H. R. 10583—Mr. Dingell, of Michigan. Amends Social Security Act to provide that certain determinations of permanent and total disability made by other federal or state agencies shall be accepted by the Secretary of Health, Education, and Welfare as proof of disability.

H. R. 10598 — Mr. Carrigg, of Pennsylvania. Amends Housing Act of 1950 to authorize loans under the college housing loan program for the construction of science buildings and libraries at educational institutions.

H. R. 10603—Mr. Eberharter, of Pennsylvania. Amends Internal Revenue Code to increase amount of charitable contributions made by corporations and individuals which may be deducted from gross income, where such contributions are for basic research.

H. R. 10617—Mr. Judd, of Minnesota. Small Business Tax Adjustment Act. Includes voluntary retirement plans similar to Jenkins-Keogh bill (H. R. 9 and H. R. 10).

S. 2917—Mr. Tyhe, of Minnesota. Provides for program of scholarships for college undergraduate and graduate level education, to be administered by the Commissioner of Education.

S. 2938—Mr. Frear, of Delaware. Amends Internal Revenue Code to allow an additional income exemption for an individual who is a student at an educational institution above the secondary level.

S. 2956—Mr. Monroney, of Oklahoma (for himself, Mr. Kerr, of Oklahoma, and Mr. McNamara, of Michigan). Amends Vocational Education Act of 1946 to promote scientific education.

S. 2957—Mr. Thurmond, of South Carolina. Establishes a United States Science Academy, in the Department of Defense.

S. 2967—Mr. Gore, of Tennessee. Establishes a National Science Academy in the Department of Health, Education, and Welfare, for a program of scientific scholarships, and the encouragement of the study of mathematics and science by assisting the States in providing science education.

S. 2978—Mr. Yarborough, of Texas. To establish a program of educational assistance to veterans who served in the Armed Forces of the United States after January 31, 1955.

S. 2994—Mr. Neuberger, of Oregon (for himself, and Mr. Kefauver, of Tennessee). To provide for holding a White House Conference on Aging to be called by the President before December 31, 1958.

S. 3086—Mr. Proxmire, of Wisconsin. Social Security Amendments of 1958. Amends Social Security Act to raise benefits thereunder, to raise maximum amount of annual earnings upon which benefits may be based, to provide for hospitalization insurance, etc.

S. 3089—Mr. McNamara, of Michigan (for himself, and Mr. Humphrey, of Minnesota). Provides for a White House Conference on Aging to be called by the President before December 31, 1958.

S. 3096—Mr. Smathers, of Florida. Amends Internal Revenue Code to allow deduction for amounts paid by a teacher for his further education.

S. 3110—Mr. Potter, of Michigan. Creates a Commission on the Establishment of a United States Academy of Science.

S. 3111—Mr. Jenner, of Indiana. To establish a United States Academy of Science and Technology.

S. 3119—Mr. Mansfield, of Montana. Amends National Science Foundation Act to revise authority to grant scholarships and fellowships.

S. 3121—Mr. Holland, of Florida. Amends Federal Property and Administrative Services Act of 1949 to public health agencies of any State or political subdivision thereof.

S. 3126—Mr. Humphrey, of Minnesota (for himself, Mr. McClellan, of Arkansas, and Mr. Yarborough, of Texas). Creates an executive department to be known as the United States Department of Science and Technology.

S. 3155—Mr. Flanders, of Vermont. Amends Tariff Act of 1930 to permit educational organizations to import free of duty scientific and laboratory apparatus for educational or scientific purposes.

S. 3156—Mr. Flanders, of Vermont (for himself, and Mr. Bricker, of Ohio). To provide for increase in National Science Foundation's programs for summer and academic year institutes for advanced education for teachers in science or humanity.

S. 3157—Mr. Flanders, of Vermont (for himself, and Mr. Bricker, of Ohio). Establishes a Federal Scholarship Board in the Department of Health, Education, and Welfare for a scholarship program to assist promising students to obtain college and university undergraduate education.

S. 3158—Mr. Stennis, of Mississippi. Amends Internal Revenue Code to allow a teacher to deduct from gross income up to $800 a year of expenses incurred by him to further his education.

S. 3162—Mr. Smathers, of Florida. Amends Internal Revenue Code to allow deduction for amounts paid by taxpayer in obtaining a college education or in providing a college education for his spouse, or dependents.

S. 3163—Mr. Smith, of New Jersey (for himself, Mr. Allott, of Colorado, Mr. Bush, of Connecticut, Mr. Case, of New Jersey, Mr. Cooper, of Kentucky, Mr. Ives, of New York, Mr. Payne, of Maine, Mr. Purtell, of Connecticut, Mr. Thye, of Minnesota, Mr. Javits, of New York, and Mr. Wiley, of Wisconsin). Educational Development Act of 1958.

S. 3180—Mr. Kefauver, of Tennessee. Establishes an executive department to be known as the United States Department of Science.

S. 3187—Mr. Hill, of Alabama (for himself, Mr. Sparkman, of Alabama, Mr. Fulbright, of Arkansas, Mr. Murray, of Montana, Mr. Pastore, of Rhode Island, Mr. Langer, of North Dakota, Mr. Humphrey, of Minnesota, Mr. Kerr, of Oklahoma, Mr. Ives, of New York, Mr. Morse, of Oregon, Mr. Kefauver, of Tennessee, Mr. Jackson, of Washington, Mr. Hennings, of Missouri, Mr. Scott, of North Carolina, Mr. Yarborough, of Texas, Mr. Symington, of Missouri, Mr. Magnuson, of Washington, Mr. Green, of Rhode

Island, Mr. Proxmire, of Wisconsin, Mr. Chavez, of New Mexico, Mr. Monroney, of Oklahoma, Mr. Douglas, of Illinois, Mr. Mansfield, of Montana, Mr. Kennedy, of Massachusetts, Mr. Long, of Louisiana, Mr. Carroll, of Colorado, and Mr. Neuberger, of Oregon). National Defense Education Act of 1958.

S. 3194—Mr. Sparkman, of Alabama (for himself, Mr. Thye, of Minnesota, Mr. Humphrey, of Minnesota, Mr. Morse, of Oregon, Mr. Bible, of Nevada, Mr. Proxmire, of Wisconsin, Mr. Saltonstall, of Massachusetts, Mr. Goldwater, of Arizona, Mr. Kuchel, of California, Mr. Javits, of New York, Mr. Hoblitzell, of West Virginia, Mr. Yarborough, of Texas, Mr. Payne, of Maine, Mr. Ives, of New York, Mr. Flanders, of Vermont, Mr. Watkins, of Utah, Mr. Allott, of Colorado). Small Business Tax Adjustment Act. Includes voluntary retirement plans similar to Jenkins-Keogh bill (H. R. 9 and H. R. 10).

S. 3226—Mr. Long, of Louisiana. Amends Internal Revenue Code to permit a taxpayer who has attained the age of 65 and is disabled, or whose spouse has attained the age of 65 and is disabled, to deduct up to $20,000 of medical expenses incurred in any year.

S. 3232—Mr. Flanders, of Vermont. Amends Internal Revenue Code relating to unlimited deduction for charitable contributions.

S. 3254—Mr. Murray, of Montana. Amends Internal Revenue Code to increase amount of charitable contributions made by a corporation which may be allowed as a deduction where all or part of such contributions are made to educational institutions.

Van Sandt Heads Task Force

▶ Mr. Max M. Van Sandt, a Public Health Service medical officer, has been assigned to the Office of Defense Mobilization, as Chairman of the Health Manpower Task Force, succeeding Dr. Leslie W. Knott, now Assistant Chief, Division of Special Health Services, Bureau of State Services, Public Health Service.

He is a graduate of the University of Michigan and received his medical degree at the University of Cincinnati in 1930.

A native of Wewoka, Oklahoma, where he engaged in private medical practice from 1930 to 1945, Dr. Van Sandt entered the federal service with the Bureau of Indian Affairs.

Commissioned in the Reserve Corps of the Public Health Service in 1948 and in the Regular Corps in 1952, Dr. Van Sandt has been on detail to the Federal Civil Defense Administration since early in 1954.

FCDA Medical Affairs

▶ Dr. Robert Leslie Smith has been appointed by Federal Civil Defense Administrator Leo A. Hoegh to be Assistant Administrator, Health and Medical Affairs, a new position in the Agency.

Dr. Smith, a Public Health Service Medical Officer, has been on loan to FCDA for the past 3 years as Deputy Director, Health Office.

DEPARTMENT OF PUBLIC AFFAIRS

ROY J. HARVEY, D.O., Chairman

Bureau of Public Education On Health

ROSWELL P. BATES, D.O., Chairman

American Association of Osteopathic Examiners

▶ On February 9, 1958, the American Association of Osteopathic Examiners met at the Central Office of the American Osteopathic Association in Chicago. This organization is composed of members of medical and osteopathic boards licensing and regulating the practice of osteopathy in the various states. At this year's annual meeting there were present representatives from the states of Arkansas, California, Colorado, Florida, Illinois, Iowa, Kansas, Kentucky, Massachusetts, Michigan, Minnesota, Missouri, New Jersey, New Mexico, New York, Oklahoma, Ontario, Tennessee, Texas, and South Dakota. The representatives from New Mexico and South Dakota were from the boards of basic science examiners in those states; and representatives from both the Minnesota basic science and osteopathic licensing boards were present.

Dr. M. E. Coy of Jackson, Tennessee, president of the American Association of Osteopathic Examiners presided at the meeting. Dr. Coy was re-elected president for the forthcoming year, and F. C. Hopkins of Hannibal, Missouri, was elected secretary.

This year's meeting was one of the most successful and best attended meetings which the Association has had in recent years. The large number present and their discussions indicated the deep interest and concern in relation to their functions as members of state licensing boards.

Meetings of the Federation of State Medical Boards of the United States were being held in Chicago at the same time as those of the Osteopathic Examiners, making it possible to attend both series. Many of the osteopathic physicians present were members of medical licensing boards which are constituent members of the Federation; thus, their presence was expected at Federation meetings. Other doctors of osteopathy whose licensing boards are not members of the Federation were privileged to attend the Federation meetings which are open to all physicians and lay persons interested in the licensing and regulation of physicians and surgeons.

A.O.A. ACTIVITIES

Two members of the Bureau of Public Education on Health of the A.O.A., Dr. Roswell P. Bates, chairman of the Bureau of Public Education on Health, and Dr. Edward A. Ward of Saginaw, Michigan, were present at the meeting of the Osteopathic Examiners. On February 10, the Bureau of Public Education on Health held a luncheon for all representatives of licensing and basic science boards present in Chicago. This luncheon, which was attended by some twenty-nine doctors and lay persons, presented a further opportunity for discussion of problems in connection with the licensing of physicians.

Some of the matters discussed during the meetings are such that they will require extended study and consideration. One was the use of objective-type, multiple-question, machine-graded examinations by state licensing boards. In many states the boards are investigating the advantages of such examination over the essay type, long used in most states. It is reported that some ten licensing boards regulating either doctors of medicine or doctors of osteopathy are currently using the objective-type of examination. While this type has been said to involve certain legal problems not involved in the essay-type of examination, it appears that these problems are being worked out to the satisfaction of the legal authorities in the various states.

Needless to say, the burden of preparing and grading essay-type examinations in the states where a large number of applicants are examined each year is a considerable one. If the contents of the objective-type examinations reach the same standards maintained by the essay-type in years gone by and their use serves as a fair and unprejudiced means of determining the qualifications of physicians, as the proponents of the objective type of examination contend, then it seems likely its use will increase in the years ahead.

Certainly no one would contend that the purpose of an examination is other than to give to all applicants a realistic and competent examination to determine their qualifications to practice medicine in the state. And certainly every one holds that the examination procedure should be one which places all applicants on the same legal plane in regard to fairness of the questions asked, which excludes preference for any school of medicine, and which has a grading system resulting in an impartial determination of the grades. It seems clear from the discussions of the Osteopathic Examiners that in the near future many boards will be studying means and methods by which examination procedures can be improved, whether the essay-type examination is retained or the new objective-type examination is adopted. At present this latter type is being made available by two national organizations, the Professional Examination Service of the American Public Health Association and, for medical boards alone, the National Board of Medical Examiners.

All board members were interested in means by which licensing boards could acquire and keep current information regarding disciplinary actions or revocations of licenses occurring in other states. It seemed agreed that licensing boards are responsible for investigating the qualifications and moral character of applicants and that boards should attempt the reciprocal transmittal of information regarding license holders or applicants. It was noted that use can be made of the records of the American Osteopathic Association which contain reliable information pertaining to osteopathic physicians practicing in the various states, whether or not they are members of the A.O.A. Board members recognize that it is to the mutual interest of all state boards to see that only qualified men and women are licensed. Whenever doctors deviate from accepted legal standards, disciplinary action should be a matter of official record and be brought to the attention of all state boards.

While the National Board of Examiners for Osteopathic Physicians and Surgeons has achieved some recognition from state licensing boards, it has not achieved the wide recognition and acceptance now accorded the National Board of Medical Examiners. The meeting of the American Association of Osteopathic Examiners, however, indicated that if all the licensing boards were adequately informed and educated concerning the high standards of examination and qualification demanded by the National Board of Examiners for Osteopathic Physicians and Surgeons, further recognition would soon be forthcoming. It seemed agreed, therefore, that all represented agencies, both governmental and professional, should make an effort to inform themselves and other state agencies concerning the standards and qualifications of the National Board of Examiners for Osteopathic Physicians and Surgeons. The recognition accorded the National Board has been on a steady rise, but it is believed that it can be accelerated by a more informed and educated professional and licensing personnel.

Medicolegal decisions

Hospital charges.—The Department of Mental Hygiene of the State of California sought to recover the costs of providing hospital care to an alien from persons who had signed an "affidavit of support" filed with the American Consul in a foreign country at the time the alien was permitted to enter the country as an immigrant. *Held;* no recovery. The affidavit of support signed by a citizen is a moral and not a legal contractual obligation which either the United States or any third party can enforce. The affidavit of support is not intended to preclude an alien from ever becoming a public charge, but only to give some assurance of help during the initial period of entry into the country. If the alien does in fact become a public charge he may be deported. *Department of Mental Hygiene of California v. Renel,* 167 N.Y.S. 22 (1957)

Tax exemption.—Certain money bequests of a testator to the New York County Lawyer's Association, the Association of the Bar of the City of New York, and the New York State Bar Association were challenged as being not bequests to corporations organized and operated exclusively for charitable, scientific, literary, or educational purposes so as to be deductible from the decedent's gross estate as charitable bequests. *Held;* not deductible from the decedent's gross estate in computing his net estate for federal estate tax purposes. The purposes of the organization as set out in their articles of incorporation, the characterizations of the organizations under decisions of the state courts, and the actual operations of the organizations as a mat-

ter of fact indicate that they are not operated exclusively for charitable purposes but exist primarily to benefit members of the legal profession. *Dulles v. Johnson,* 155 F. Supp. 275 (1957)

Practice of medicine—Sherman Anti-Trust Act.—A physician (M.D.) filed a complaint against the county medical society to recover treble damages under the Sherman Anti-Trust Act on the ground that his practice had been damaged financially because of the refusal of the county medical society to accept him as a member. He alleged that if he had been or was now a member he would have a larger practice, more patients from other states, and that he was fully qualified for membership but that it was arbitrarily and wrongfully denied him. *Held;* the complaint dismissed. The complaint was confined to the plaintiff's own private medical practice and alleged no economic burden on the public as a result of the alleged acts. Treating patients from several states does not constitute interstate commerce as the transportation involved is merely incidental and remote. The physician has not been prevented from practicing his profession nor is the practice of his profession classified as trade or commerce under the Sherman Anti-Trust Act. The Act is not directed primarily to the protection of the individual but to the economic protection of the general public. General restraints upon competition have been condemned only when their purpose or effect was to raise or fix the market price. *Riggall v. Washington County Medical Society,* 249 I. 2d 266 (1957)

Expert witness.—The qualifications of an orthopedic specialist as an expert witness were challenged because the doctor was not certified by the American Board of Orthopedic Surgery. The doctor had twice failed the examinations of the Board and had been refused permission to take the examination a third time because he did not devote himself exclusively to the specialty. *Held;* the doctor's testimony as an expert was admissible. It is regrettable that the doctor had not been admitted to membership in the American Board of Orthopedic Surgery as the desirability of being recognized by that group is evidenced by the witness' own efforts to gain such membership. The failure to be a member of the specialty board might affect the weight which should be given to his opinions when contradictory to opinions of those doctors who have qualified for admission in the specialty organization. *Smith v. W. Horace Williams Company,* 84 So. 2d 223 (1956)

THE A.O.A. CODE OF ETHICS

*A physician—Identification of school of practice**

► Section 8 of Chapter II, Article 1, of the Code of Ethics is a section of particular importance and significance. It is divided into five subsections, each related to one phase or aspect of a physician's practice or professional standards. The subsections are inter-related, and each of them has a conciseness frequently not found in other parts of the Code.

Subsection (e) directs that it is unethical for a doctor of osteopathy "in the professional use of his name" to fail to designate or indicate by one of the accepted terms, "D.O.," "osteopathic physician and surgeon," or some similar term, his school of practice. That a doctor should designate his school of practice has been considered an inherent part of the healing art system in the United States. Over the years, the degrees and terms of identification of the various professions have become a part of the language and customs of the American people. The various designations are terms of respect and distinction, and their use brings to the persons professionally and legally authorized to use them the honor and prestige deriving from their many years of use.

A brief historical sketch of European usage is helpful in clarifying the entire matter of degrees. Titles used incorrectly lead to misunderstanding. The title "doctor" originated historically in medieval Europe with the theologian—the doctor of divinity. The academic doctor of philosophy (Ph.D.) is an offshoot from the same stalk. "Doctor" became a hallmark of learning in all the disciplines; possession of the title entitled the holder to teach in a university, and in the case of medicine, law, and theology to practice his profession. Medical practitioners who have taken advanced studies were entitled to a *doctorate* of medicine, but not just any medical practitioner. Except in the United States and Canada, the degree in medicine (preparation for practice and for legal qualification) is that of bachelor (B.M., or B.S., et cetera). The doctorate in medicine in most countries (noteworthy, England) is an advanced degree comparably offered in selected American universities as an Med.Sc.D., for postdoctoral research in clinical medicine.

The practitioner of medicine in those countries possessing no degree other than the B.M. is often called "Doctor" by courtesy. He may not employ the title unless it has been earned. The term "physician" implying the "healer" is ancient in origin; the "doctor" conceived as one who heals came much later.

Statutory enactment, judicial opinion, and usage by governmental agencies confirmed the historical meaning of "physician" by applying it to doctors of osteopathy. There is no longer any question of their legal right to use the term. Too strong an emphasis cannot be made that as a matter of interprofessional courtesy, and as being in good taste, osteopathic physicians should designate their profession. And again there is the fact of the A.O.A. Code.

*This is the seventh in a series of short articles on the meaning of ethical standards as applied to the practice of osteopathy; the first three were published in the July, August, and September 1957 issues of THE FORUM OF OSTEOPATHY. Subsequent articles have been published in THE JOURNAL, beginning with the December 1957 issue. The A.O.A. Committee on Ethics and Censorship strongly urges the reprinting of these articles, wholly or as excerpts, as they appear from month to month. In all cases, wording should not be changed but reprinted verbatim.

A.O.A. ACTIVITIES

Doctors of osteopathy, their status assured and readily validated for the uninformed, should be especially aware of the worth and fairness of interprofessional relations based on a precise knowledge of the function and qualification of other professional groups. Certainly, members of the osteopathic profession should be the last to be presumptuous and assumptive about the title "doctor." Respect for another's position, training, and status will lead to mutual respect among related professions of the healing arts. Much more important than any concrete situation is the use of correct titles generally and to understand their bases as fundamental to the improvement of professional relationships.

The other subsections of section 8 tend to shore up and protect the professional designation of school of practice required by subsection (e). Thus subsection (a) classifies as unethical the act of assisting or giving aid to any person attempting to evade the legal restrictions governing the practice of medicine. Subsection (b) directs that it is unethical for a doctor to be associated in practice with or share office space with any person illegally practicing the healing art. Subsection (c) warns against the use of any degree recognized as the basis for licensure in a state unless a person is actually licensed under that degree or could have been at the time he received the degree. Subsection (d) recognizes that only healing art degrees received from a school or college of the healing arts approved by the national professional organization recognized by the United States Office of Education as representative of that school or college of the healing art are worthy of use or acquisition.

Thus these subsections all tend to protect the osteopathic profession's degree of D.O. and the other similar related terms which identify the osteopathic profession from abuse arising from associations with persons in illegal or unethical practice or who designate themselves by the use of degrees of an unrecognized character. The time-honored designations of the osteopathic profession have been so received and accepted by the public and are an important part of American medical terminology and customs. It is important that their use be increased and at the same time be protected and honored in the best interests of the public health.

Headquarters Activities

Drs. Robert and Ruth Steen leave A.O.A.

► Drs. Robert and Ruth Steen, administrative assistant and secretary of the Bureau of Conventions of the American Osteopathic Association for the past 11 years, are leaving their positions with the A.O.A. but will continue to serve the osteopathic profession.

Undecided as yet to their future address and work, the Steens are looking forward to a period of rest. As Dr. Bob said, "Dr. Ruth and I have not been able to take a good vacation for a long time. Every time she had a quiet period in her work, I was always jammed up, and vice versa."

In June 1947 the Drs. Steen came to the A.O.A. as the first move in an expansion program to take some of the load from the shoulders of Dr. Russell C. McCaughan, the late A.O.A. Executive Secretary. They joined the forty-five member staff of the Central Office, then located at 139 North Clark Street but which was soon moved to the present home.

"That was quite a moving job from the 20th floor of a Loop building to Ohio Street," Dr. Bob recalled. "We used to walk by the construction site on our way to work each day—to supervise the work you might say. We were quite proud for the A.O.A. and the profession when we moved into the new building."

Those who know Dr. Bob realize that his official title, administrative assistant, hardly explains the many duties he has fulfilled for the

Dr. Ruth Steen

Dr. Robert A. Steen

A.O.A. In 1949 he became secretary of the Advisory Board for Osteopathic Specialists and has retained this position to the present. From 1950 to 1951 he was a member of the Editorial Committee on Hospital Code Books. He was associated with the Committee on Accreditation of Postgraduate Training from 1953 to the present, and last year he became secretary of the Coordinating Committee on Graduate Education. However, the job that has occupied most of his time has been that of secretary of the Bureau of Hospitals. "It was only a three-man Bureau when I became its secretary," Dr. Bob said. "Today there are nine Bureau members for whom a multitude of records must be prepared so that they can evaluate the ever-increasing number of hospitals desiring A.O.A. recognition.

"In those earlier days I could stack applications for internship and residency in two small piles; now it takes a whole file—a good indication of the growing number of osteopathic physicians and hospitals."

Dr. Bob termed the development of an efficient system of routine mechanics for the enormous amount of detail connected with his work as his most difficult problem.

Dr. Ruth's job has been as detailed as that of Dr. Bob's in that she has had to prepare for A.O.A. conventions 5 years in advance and assist many divisional societies and allied groups with plans for their annual meetings.

Dr. Bob and Dr. Ruth met at Kirksville College of Osteopathy and Surgery when he was a junior and she a freshman. Dr. Ruth actually began her osteopathic training at the College of Osteopathic Physicians and Surgeons, but a violent earthquake convinced her that it would be safer to go to school in Missouri. They were married in Dr. Bob's senior year, and Dr. Ruth finished her education at Kansas City College of Osteopathy and Surgery so she could be near Dr. Bob who had set up practice in Emporia, Kansas. She joined him in his office upon her graduation and licensure.

Both Drs. Steen have been active in organized osteopathy ever since they entered practice and are considered greatly responsible for the success of the Kansas State Osteopathic Association. Dr. Bob was K.S.O.A. executive secretary-treasurer from 1939 to 1947. He also served as editor of the divisional society and three times as its delegate to A.O.A. national conventions. He was a member and secretary of the Kansas State Board of Osteopathic Examination and Registration. He is an honorary life member of the Society of Divisional Secretaries and has served as its secretary-treasurer. Dr. Bob holds membership in Sigma Sigma Phi and is a past member of the Academy of Applied Osteopathy. Dr. Ruth is also a past member of the Academy and was awarded its special citation for outstanding service in July 1953.

The Association wishes to express appreciation to the Drs. Steen for the outstanding service they have given to the profession and its national organization. We know that many of the D.O.'s they have worked with and helped will want to wish them well. Until they are relocated, they can be reached at his mother's home, 702 State Street, Emporia, Kansas.

D.O.'s on medical, osteopathic, and basic science licensing boards are shown at a luncheon held during the recent Congress on Medical Education and Licensure. Front row (left to right) are: Drs. L. D. Elliston, Covington, Tenn.; James B. Donley, Kingman, Kans.; Lawrence C. Boatman, Santa Fe, N. Mex.; Oscar A. Jungman, Scotland, S. Dak.; Fred H. Erhardt, Oklahoma City; D. G. A. Campbell, Toronto, Can.; C. J. Manby, Battle Creek, Mich.; E. C. Darnall, Berkeley, Calif.; Edwin T. Ferren, Camden, N.J.; Back row: Drs. Marion Edmund Coy, Jackson, Tenn.; G. G. Porter, Lubbock, Texas; Wallace F. Kreighbaum, Minneapolis; John R. Pike, Albany, N.Y.; Robert R. Brown, Belmont, Mass.; Carl J. Johnson, Louisville, Ky.; Thomas F. Sheffer, Fort Lauderdale, Fla.; Cecil C. Thorpe, Longmont, Colo.; Eugene M. Sparling, Hot Springs, Ark.; and C. R. Starks, Denver.

Other board members attending the Congress but not shown were: Drs. Dale Dodson, Northfield, Minn.; F. C. Hopkins Hannibal, Mo.; George C. Widney, Jr., Albuquerque, N. Mex.; and R. H. Peterson, Wichita Falls, Texas. Also at the luncheon but not pictured were: Drs. Edward A. Ward, Roswell P. Bates, Dale E. Richardson, and Messrs. Paul D. Adams, Douglas O. Durkin, and Milton McKay.

Seminar reports progress

► The valuable exchange of information at the 1958 Seminar on the Teaching of Osteopathic Principles and Technics was again inspiring to those responsible for this phase of education in the osteopathic colleges. This third annual meeting, which was held February 7 and 8 at Central Office, was considered to be the best of these conferences that serve to strengthen the educational programs of the profession and its colleges.

Attending the Seminar, called by the Bureau of Professional Education and Colleges, were sixteen representatives of osteopathic colleges. For the first time clinical chairmen were invited in an effort at further correlation of clinical teaching with osteopathic principles and technics.

Dr. Robert B. Thomas, Bureau chairman, was general chairman of the Seminar, and Dr. J. S. Denslow served as its program chairman. The major part of the didactic session was devoted to progress reports on the teaching of osteopathic principles and technics in the colleges from three reference committees. A report from the Committee on Standard Nomenclature by Dr. W. Fraser Strachan also was heard. It was suggested that members of the Seminar give further study to Dr. Strachan's information in order to facilitate understanding of those findings designated as primarily osteopathic. It was also recommended that the name of the Seminar be changed to the Seminar on the Teaching of Osteopathic Theory and Practice.

Those present at the meeting were: Drs. Wilbur J. Downing, Walter C. Eldrett, and Robert A. Kistner, Chicago College of Osteopathy; Drs. J. M. Andrews and Charles C. Dieudonne, College of Osteopathic Physicians and Surgeons; Drs. Byron E. Laycock, Richard P. DeNise, and Glenn E.

Bigsby, Des Moines Still College of Osteopathy and Surgery; Drs. Wilbur V. Cole, K. J. Davis, F. Leighton Harmon, and Harold W. Witt, Kansas City College of Osteopathy and Surgery; Drs. R. McFarlane Tilley and Max T. Gutensohn, Kirksville College of Osteopathy and Surgery; and Drs. Barbara Redding and Edgar O. Holden, Philadelphia College of Osteopathy.

Also in attendance were Drs. Allan A. Eggleston and Roy J. Harvey of the Bureau; Dr. Raymond P. Keesecker, Editor, and Lawrence W. Mills, director, Office of Education.

Of particular note at this Seminar was the increased emphasis on the use of osteopathic procedures in college clinics as well as improvement in the teaching of osteopathic technics in the classrooms.

O.P.F. salutes Ohio

▶ A salute is being offered this month to the Osteopathic Progress Fund committee of the Ohio Osteopathic Association of Physicians and Surgeons for its outstanding performance in the current national O.P.F. campaign. According to G. Willard King, director, Osteopathic Foundation, the committee already has turned over more than $40,000 to the national O.P.F. office, again leading the states having voluntary campaigns.

Dr. Charles L. Naylor

The $40,000 figure is a 25 per cent increase over the amount collected at this time in last year's drive. Mr. King attributes Ohio's highly successful 1957-58 campaign to excellent leadership and organization—the two factors he calls most important in any voluntary solicitation campaign. The Ohio program is headed by Dr. Charles L. Naylor, O.P.F. chairman, and Mr. William Konold, executive secretary, of the divisional society.

There are two major ways through which states can support the O.P.F. program, Mr. King said. These are: (1) support-through-dues programs such as are being used in seven states; and (2) personal solicitation campaigns. One of the advantages of the support-through-dues program is that funds are collected systematically as part of the state society's regular membership dues. An extensive organizational program must be set up for a voluntary campaign which requires additional work and excellent leadership.

"Careful planning at the beginning of a voluntary campaign," Mr. King said, "usually results in a successful drive. . . . It is at the start of the campaign that the national O.P.F. office should be called in to help."

According to the O.P.F. director, "Campaigning is an art, easy when you have experience, a little harder if you are a beginner. The national office has the know-how and the necessary materials. So when your state society board of trustees gives the green light to a voluntary campaign—consult us first."

A voluntary campaign is usually in the hands of the state society's O.P.F. chairman, who works along with its secretary. These two men set up a state O.P.F. committee consisting of district O.P.F. chairmen. It is the responsibility of these district leaders to organize local committees made up of area captains. In turn the captains supervise a crew of solicitors, who contact D.O.'s in their communities for their O.P.F. contributions.

Although O.P.F. returns thus far in the 1957-58 year are running ahead of this time a year ago, they are not keeping pace with the rapidly increasing needs of the colleges. Contributions in 1956-57 totaled $709,000. The annual O.P.F. figure should be $1 million a year to take care of only the most pressing needs of the colleges, Mr. King said.

With better organized campaigns, reports such as that of Ohio would become commonplace, and the future of osteopathic education and of the profession itself would be assured.

Meeting of Committee on Standard Nomenclature

▶ Further study of standardization of osteopathic nomenclature was made by the Committee on Standard Nomenclature of the American Osteopathic Association at their meeting in Central Office, February 5 and 6. In particular, efforts were made to describe the positional and mobility aspects of musculoskeletal abnormalities, according to Dr. W. Fraser Strachan, chairman. This was done, Dr. Strachan said, because heretofore little attention has been given to minor or passive joint motion.

The meeting was another step forward in the attempt to define in scientifically acceptable terms those musculoskeletal abnormalities that have occupied the attention of both the profession's educators and its clinicians since the early days.

A tentative definition was made of the osteopathic lesion as "a syndrome with local changes in the musculoskeletal tissues which are characterized by abnormal tone, low reflex and pain thresholds, and disturbances in joint motion and osseous relationships and which may be associated with pathology or dysfunction in segmentally related tissues and organs." This definition will be added to the glossary the Committee is preparing for use as a part of a revised nomenclature.

Members of the Committee are Drs. Charles C. Dieudonne, Edgar O. Holden, Myron C. Beal, J. S. Denslow, and Raymond P. Keesecker, A.O.A. Editor.

Change proposed in convention format

► The Committee on Format and Scheduling of National Conventions of the American Osteopathic Association and representatives of the specialty colleges met February 1 at Central Office to discuss combining their educational meetings into a single clinical assembly. The specialists were asked to report to their individual colleges on the thinking behind this proposed change in format of the Annual Convention of the American Osteopathic Association, according to Dr. Campbell A. Ward, chairman.

This change is predicated upon the House of Delegates' acceptance of the recommendation that business meetings of the House, Board of Trustees, and other A.O.A. agencies be separated from the educational program. It has been suggested that the House of Delegates meet annually in Chicago at a time different from that of the Convention.

The joint gathering was advised that the separation of business meetings from professional lecture programs and educational clinics would be for the betterment of the whole profession and would result in a larger and finer program for all participants. Also, present arrangements make it impossible for members of the Board, House of Delegates, and A.O.A. officers to attend many of the lectures and postgraduate teaching clinics.

Separation would greatly reduce the number of personnel required from the Central Office also, and further savings could be realized by the elimination of the expense of shipping files and working tools to the convention site. It is also expected that commercial exhibits would be increased by the combining of teaching sessions because the larger attendance at the convention would be an added inducement to exhibitors.

Representatives of the specialty colleges at the meeting included Drs. Howard A. Lippincott, Academy of Applied Osteopathy; W. Clemens Andreen, American College of General Practitioners in Osteopathic Medicine and Surgery; P. J. MacGregor, Jr., American College of Osteopathic Obstetricians and Gynecologists; Everett C. Borton, American College of Osteopathic Pediatricians; R. G. Dorrance, Jr., American Osteopathic College of Physical Medicine and Rehabilitation; Randall O. Buck, American Osteopathic College of Proctology; Ray E. Bishop and F. A. Turfler, Jr., American Osteopathic College of Radiology; Arthur A. Martin, Osteopathic College of Ophthalmology and Otorhinolaryngology; and Charles L. Ballinger and Mrs. Esther Martin, American College of Osteopathic Surgeons.

Others present at the meeting were Dr. Myron C. Beal, committee member, and Dr. True B. Eveleth, A.O.A. Executive Secretary and Walter A. Suberg, A.O.A. Business Manager, who served as consultants.

It is expected that another Committee meeting will be called after all specialty groups discuss the proposal and report their decisions.

P.&P.S. PReviews and PRojects

► **Press**—The first annual journalism awards competition of the American Osteopathic Association closed February 15 with a good representation of stories from newspapers across the nation. Processing of the articles about osteopathy by the Public and Professional Service staff and judging by Edward Eulenberg, faculty member, Medill School of Journalism, Northwestern University, and editorial staff member, *Chicago Daily News,* should be completed in time for an early April announcement of the winners.

Physicians in the communities of the winning writers will be asked to make the presentations of the $100 awards on behalf of the A.O.A. Among the papers represented by entries are the *Fort Worth Star-Telegram,* the *Indianapolis News,* the *Kansas City Star,* the *Detroit News,* and others.

Convention News—Some forty-five member agencies of the National Health Council have been asked to exhibit at the 62nd A.O.A. convention in Washington. Invitations were extended by Robert A. Klobnak, P.&P.S. director, on behalf of the exhibits committee.

Films—Revisions of the A.O.A.

Otha Linton, P.&P.S. press representative, glances through the pile of newspaper stories about osteopathy sent by reporters and editors from across the nation in response to the recent announcement of A.O.A. journalism awards. Awards of $100 each will be presented to writers of the three most outstanding articles contributing to public understanding of the osteopathic profession.

film, "Physician and Surgeon, D.O.," have been completed, according to John J. Hank, division audio-visual director. The new film brings views and script commentary on the six colleges up to date without altering other content or changing its length. The film will continue to be available in 16 mm. color with sound, with a running time of 14½ minutes.

The division's purchase of a dozen prints should relieve a recent shortage of the earlier version. Six prints already have been purchased by local and state organizations for television and group showings.

Radio—The A.O.A. has received conditional approval from the United States Public Health Service to proceed with a radio series on health problems. The series will be written and produced by Mr. Hank and will bear a credit line at the opening and close to show the technical participation of the U.S.P.H.S.

The first program deals with heart disease and is based on information obtained from the U.S.P.H.S. and other sources. A total of thirteen programs are planned in the series.

Staff travels

▶ **Dr. True B. Eveleth,** Executive Secretary, was in Denver from February 6 to 10 surveying the city's hotels and other facilities for the 1962 A.O.A. Convention. **Walter A. Suberg,** Business Manager, accompanied him.

Dr. Eveleth also participated in a Texas conference for district councilmen February 15 to 17 at Fort Worth. The meeting, sponsored by the Texas Association of Osteopathic Physicians and Surgeons, was designed to strengthen district society organization and acquaint the society leaders with organization problems. At the event, Dr. Eveleth spoke on organization structure; **Lawrence W. Mills,** director, Office of Education, outlined a vocational guidance program; **G. Willard King,** director, Osteopathic Foundation, talked about fund-raising campaigns; and **Robert A. Klobnak,** director, Division of Public and Professional Service, discussed public relations.

Mr. Mills also was in Philadelphia from February 8 to 14 to serve on a survey committee of the Philadelphia College of Osteopathy on behalf of the Bureau of Professional Education and Colleges. He was assisted in this work at Philadelphia by his secretary, **Margaret Hatchell.**

Mr. King spent February 12-14 in New York City visiting foundations, who have evinced their interest in learning the facts about osteopathic education. At the same time he attended a Conference on Development meeting with Drs. Roy J. Harvey, W. Kenneth Riland, William O. Kingsbury, and Alexander Levitt. Dr. Harvey and Mr. King also talked with Dr. David J. Bachrach, Christmas Seal chairman, of the New York State Osteopathic Society.

Otha Linton, P.&P.S. press representative, and **Daniel A. Astrahan,** P.&P.S. special writer, were a two-man team assigned to handle press, radio, and television relations at the annual meeting of the American College of Osteopathic Obstetricians and Gynecologists at Denver. They were away from Central Office from February 5 to 13.

Dr. Clyde C. Henry, director of hospital inspections, inspected hospitals in Oklahoma and Texas from mid-January to mid-February on the first swing of his 1958 inspection tour.

Current Literature

Abdominal exploration

▶ IN THE DECEMBER 1957 issue of the *Surgical Clinics of North America,* W. Emory Burnett, M.D., says that abdominal exploration is an admission of diagnostic inadequacy and is therefore not popular with conscientious surgeons. The principal justifiable uses of exploration are to differentiate between diseases, each of which can be cured surgically; to differentiate between medical and surgical diseases, as in hepatocellular or obstructive jaundice; in acute abdominal conditions, where the secondary but not the primary cause can be stated; in penetrating wounds of abdomen or lower thorax, to correct visceral damage; and to determine resectability of malignant tumors, whether there is disease in an organ difficult to study, and whether there is residual malignancy after previous resection. When there is no lead as to the area of the abdomen to be investigated, the most adaptable incision is the vertical transrectus, placed on the right or left side. Equally adaptable, but not so strong in closure is the midline vertical incision, deviating to either side about the umbilicus and returning to the midline for extension when needed. For adequate exploration of the extent and resectability of malignant disease, a very generous exposure is needed, unless there is such extensive involvement that resection is not feasible. If such involvement is not revealed immediately, considerable dissection may have to be done. A decision of nonresectable malignancy should not be reached without all reasonable caution and thoroughness. If frozen section is deemed necessary the field should be restricted by disposable gauze, and coagulation or packing or repair of the area should

be done to avoid seepage of the cell-bearing fluid into the operative field, followed by discarding the gauze, gloves, and instruments used for this step. If exploration shows peritonitis or if contamination occurs at operation, thorough lavage of the peritoneal cavity should be done with saline containing 1,000,000 units of penicillin and 1 gram of streptomycin per pint.

A simple technique for bronchography

▶ IN THE DECEMBER 7, 1957 issue of the *Journal of the American Medical Association,* Robert H. Holland, M.D., describes a technic for bronchography that he says was developed by trial and error from individual features of the methods of other workers. After premedication with pentobarbital, atropine sulfate is given subcutaneously a half hour before the procedure. The patient sits with legs over the side of the table and extends his tongue over his chin. The pharynx is then sprayed thoroughly twice with 5 per cent hexylcaine (Cyclaine) hydrochloride. Next the passageway is sprayed twice again while the patient inhales slowly and deeply. A 16 F. radiopaque urethral catheter is then inserted through the anesthetized nasal passageway while the patient again extends his tongue and inhales deeply or coughs. With the tube in the trachea, a syringe containing 6 cc. of 5 per cent hexylcaine is quickly attached and 3 cc. injected slowly during inhalation. The remaining 3 cc. is injected in 2 or 3 minutes. In 5 minutes, with the patient on his side, the catheter is turned and advanced into the dependent mainstem bronchus. With the patient on his back the position of the catheter is determined by fluoroscopy. A syringe containing 40 cc. of propyliodone (Dionosil Oily) is attached to the catheter and is injected by an assistant as the fluoroscopist proceeds. The lower lobe is filled first with the patient on his back and the foot of the table lowered. Then the upper lobe is mapped with the patient on his side and the head of the table raised and lowered several times. The anterior segment of the upper lobe is filled with the head of the table down and the patient semi-prone. The middle lobe is filled last with the patient prone and the foot of the table down. After the lung has been inspected to be sure all segments are mapped, the patient is quickly placed before the cassette holder and posteroanterior and lateral projections of the chest are taken. If both sides are filled, posteroanterior and both oblique projections are taken.

A simple method for improving visualization of the hypermotile stomach and duodenal bulb

▶ THE USE OF THE anticholinergic drug Pro-Banthine to inhibit motility of the stomach and bulb is described by I. Richard Schwartz, M.D., E. Lehman, M.D., and J. M. Seibel, M.D., in the November 1957 issue of the *American Journal of Gastroenterology.* If hypermotility is suspected, an injection of Pro-Banthine is given intramuscularly 10 minutes before barium is ingested. If hypermotility is seen without warning after the first swallow of barium, sufficient barium usually remains in the stomach to demonstrate the mucosal pattern so that compression studies and spot films can be made. Then an intramuscular injection of 10 to 20 mg. of Pro-Banthine is given, the dose varying with body weight and rapidity of emptying. Ten minutes later, another glass of barium mixture is given and a complete delineation of stomach and duodenal bulb is easily and unhurriedly obtained. With this procedure the normal gastrointestinal tract is more clearly delineated, there is better visualization of lesions, and frequently lesions such as small ulcer craters not previously visualized may fill and be well delineated. Although the delay in motility is unphysiologic, the resultant excellent delineation will more than compensate for the inability to measure normal motor activity of the gastrointestinal tract. Pro-Banthine can be given orally in a 30 mg. dose with a minimal swallow of water 20 minutes before the x-ray examination, although this is not as effective as intramuscular injection. Pro-Banthine is contraindicated in the presence of glaucoma. In patients with prostatic hypertrophy and urinary obstruction careful observation is necessary. The drug should be used with caution, if at all, in patients with chronic, stenosing duodenal or pyloric ulcer or other gastrointestinal obstruction. The authors feel that with use of this procedure the diagnosis of "irritable" bulb and the tag of "psychoneurosis" that often accompanies it will be less frequently required.

Unexplained fever

▶ IN THE JANUARY 1958 issue of the *Medical Clinics of North America,* William J. Hand, M.D., discusses fever from insidious infections and from an aseptic origin. Among the infections due to nonhemolytic streptococci, subacute bacterial endocarditis is the most important. The fever is usually low grade, but it may be high or remittent. Others of these insidious infections are those due to staphylococci, meningococci, and gonococci. Typhoid fever must be considered when a patient has fever without definite localizing signs but with relative bradycardia, vague gastrointestinal symptoms, and apathy. The possibility of tuberculosis must always be borne in mind in any long-continued fever; however, the temperature curve is not characteristic and the onset, course, and duration of the disease are extremely variable. In brucellosis, the onset usually occurs with headache, anorexia, malaise, and joint pains. Fever first occurs in the afternoons, and it may be accompanied by a chilly sensation. The chronic form is generally marked by weakness, low-grade fever, and mental depression. There may be a complete absence of physical findings. In tularemia, there is generally a history of contact with infected animals or a tick bite, and there is usually a positive agglutination test, which becomes increasingly positive after the eighth day of illness. In the ulceroglandular type a small papule appears at the portal of entry and the regional lymphatics and lymph nodes soon become involved, with generalized symptoms of chills, fever, and malaise. In the glandular form no site of entry may be detected. A low-grade fever, otherwise difficult to explain, should arouse suspicion of syphilis.

In Leptospira jaundice or Weil's disease, the infective agent is found in the blood in the first 3 or 4 days of the disease and after that in the urine. There may be abrupt onset, with high fever, chills, prostration, and headache. Mild rash and petechial hemorrhages are frequent. The clinical picture of psittacosis resembles that of influenza, atypical pneumonia, and typhoid. The fever is generally high throughout the course of the disease and terminates by lysis after 10 to 28 days. In infectious mononucleosis there is usually irregular fever, sore throat, generalized lymphadenopathy, splenomegaly, and a well-defined serologic and morphologic alteration of the blood. In trichinosis, the fever usually begins about a week after the onset of the disease; it is irregular and persistent and lasts about 2 weeks. Among the febrile infectious diseases believed due to hypersensitization are rheumatic fever, erythema nodosum, and disseminated lupus erythematosus. The most important types of aseptic fever occur after myocardial infarctions, hemolytic crises, and gastrointestinal hemorrhages. Such fever also occurs with necrotizing malignant tumors, leukemia, and pernicious anemia.

The special problem of rheumatic heart disease in pregnant women

▶ IN THE JANUARY 1958 issue of the *A.M.A. Archives of Internal Medicine,* C. Sidney Burwell, M.D., considers the effects of circulatory and respiratory changes during pregnancy on the patient with mitral stenosis, which is the commonest cardiac problem in pregnancy. First, an increase in the cardiac output can be achieved only by an increase in the pressure gradient across the mitral valve, that is, by an increase in the left atrial

pressure. Such an increase leads inevitably to a rise in pressure in the pulmonary veins and capillaries. Second, accelerated heart rate is known to be a factor that may precipitate pulmonary congestion in patients with mitral stenosis. An increase in heart rate leads to diminution of available diastolic time, that is, to a diminution of the time available for blood flow through the mitral valve. Thus when the rate increases, if there is to be maintenance of blood flow through the mitral valve, there must be a further rise in left atrial pressure. Third, an increase in total blood volume can lead to an increase in left atrial pressure. This elevated pressure exists in a woman, who, because she is pregnant, has an elevated ventilation volume and is thus that much nearer to dyspnea. Neither interruption of the pregnancy nor cardiac surgery is a satisfactory solution to the problem. Conservative medical management is sensible and highly successful. The first principle of management is to make a place in the patient's cardiac budget for the expenditures of pregnancy by removing enough other burdens from the total load to compensate for the burden of pregnancy. Examples of removable or avoidable burdens are physical activity, emotional stress, ectopic rhythms with tachycardia, anemia, obesity, infections, hyperthyroidism, infusions or transfusions, and variations in sodium intake or retention.

A simple discriminatory test for upper gastrointestinal hemorrhage

▶ WILLIAM V. MCDERMOTT, Jr., M.D., in the December 12, 1957, issue of the *New England Journal of Medicine*, describes the measurement of peripheral blood ammonia as a means of discriminating between bleeding esophageal varices and gastrointestinal hemorrhage from some other source. Since the elevated level of blood ammonia is due chiefly to the existence of an extensive portal-systemic collateral circulation, it is not an index of variations in liver function as much as a reflection of the presence of esophageal varices. Since the quantitative method requires personnel trained in its use, a simplified qualitative colorimetric test was devised. In a study of 100 cases of massive gastrointestinal hemorrhage in which the qualitative measurement of ammonia was used, only 1 patient without esophageal varices had an elevated level of blood ammonia and a positive test result. In the patients who were bleeding from esophageal varices, the test was unequivocally positive and the blood ammonia level higher than 139 mcg. per 100 ml., with one exception. Although this study suggests that such a test is extremely accurate, some inherent fallacies in its use are pointed out. In a patient with extensive esophageal varices who bled massively from some other concomitant lesion a false-positive result would be obtained. A short but definite period must elapse between onset of bleeding and the occurrence of the biochemical changes. Pretreatment with antibiotics, glutamic acid, or arginine will negate the value of the test.

Management of varicose veins during pregnancy

▶ RECENTLY A NUMBER of investigators have advocated definitive treatment for varicose veins during pregnancy. In the December 1957 issue of *California Medicine*, S. M. Greenstone, M.D., E. Craig Heringman, M.D., and Theodore B. Massell, M.D., state that they find no justification for enthusiasm for any form of definitive treatment during pregnancy. The incidence of recurrence after radical venous operations done during pregnancy or where pregnancy has occurred subsequently is much higher than it is in cases in which pregnancy is not a factor. These discouraging results are due to increased venous pressure, obstruction to the venous drainage of the lower extremities, and hormonal factors. The management of varicose veins during pregnancy should be conservative, consisting of proper elastic support, elevation of the extremities at night and during rest periods in the day, avoiding static dependency of the legs, and control of body weight. If venous stasis and severe symptoms of varicosis cannot be controlled by conservative measures, limited surgical intervention is indicated. This should consist of high ligation and division of the involved venous trunk and the immediate tributaries. Radical extirpation of varicose veins should be reserved until further pregnancy is not contemplated.

Epidermoid carcinoma of the lower lip

▶ A STUDY OF THE VALUE of radiation therapy for the local lesion in epidermoid carcinoma is presented in the January 1958 issue of the *American Journal of Roentgenology, Radium Therapy and Nuclear Medicine* by William S. Gladstone, M.D., and H. Dabney Kerr, M.D. The series consisted of 519 consecutive, unselected cases of epidermoid carcinoma treated by irradiation from 1931 through 1950. The average age of the patients was 62.9, and 3.1 per cent were females. The right or left lateral aspects of the lip were more frequently involved than the midline, and involvement of the angle of the mouth was relatively uncommon. Contact or superficial roentgen therapy was used in 81 per cent of cases, deep roentgen therapy in 3.3 per cent, and radium in 5.1 per cent, with combinations of these technics in 10.6 per cent. In 88.4 per cent there were no demonstrable metastases at the first visit. There was only one instance of a distant metastasis developing. The absolute 3- and 5-year survival rates were 74.2 per cent and 65.1 per cent, respectively. With respect to control of the lesion, the net results showed a 3-year cure rate of 84.7 per cent and a 5-year rate of 82.8 per cent. Size and previous treatment had considerable effect on the success of therapy. Lesions under 2 cm. in diameter had a 3-year cure rate of 92.2 per cent, while those over 2 cm. had a 76 per cent satisfactory response. If previous treatment by surgery, cautery, caustics, or irradiation had not been used, the 3-year rate was 90.9 per cent. In the 140 patients in whom one or more of these agents had been used, the rate was 70 per cent. The 3- and 5-year rates in patients treated between 1931 through 1940 were 82 per cent and 79.5 per cent respectively, and for the period 1941-1950, they were 90 and 88 per cent respectively. The authors conclude that radiation therapy is as effective in the control of carcinoma of the lower lip as any method now available.

Massive hemorrhage from peptic ulcer: A cause of myocardial infarction in the aged

▶ WILLIAM L. CRAVER, M.D., and Frank Glenn, M.D., state in the December 1957 issue of the *Journal of the American Geriatrics Society* that they have found myocardial infarction to be the commonest complication of serious hemorrhage from peptic ulcer in the aged. Of 53 patients over 65 years of age admitted to the hospital in a 10-year period, there were 30 who met definite criteria for massive bleeding. There were 22 males and 8 females. Thirteen of the 30 patients had, or had a history of, major cardiovascular disorders at the time of admission. Among the 17 with no previous history of cardiovascular disease, electrocardiograms were normal in 12 and abnormal in 5. The commonest major symptom in addition to hemorrhage was epigastric pain, which was present in 10 cases. One patient had vomiting without hematemesis, and one had pain that was entirely precordial. The majority of patients had no symptoms other than those of hemorrhage; thus they had no warning of impending bleeding or activity in the ulcer. In 28.6 per cent of the patients who bled prior to admission, hemorrhage continued or began anew in the hospital. This high percentage is significant in the old-age group. The bleeding is generally from an arteriosclerotic vessel in the base of the ulcer; such a vessel is unable to contract, as it would in a younger person. In the 17 patients treated medically, 3 definite and 1 possible myocardial infarctions occurred. There were no myocardial infarctions in the 13 patients treated surgically.

Although the series is small, the occurrence of infarcts in

the medically treated patients suggests that the effect of massive hemorrhage on the circulation of the myocardium is severe. The participation of the coronary arteries in the general vasoconstriction due to the reduced blood volume presumably creates coronary insufficiency and a reduction of cardiac blood flow. In stress, because of the outpouring of adrenalin, the heart requires a larger amount of oxygen; actually the supply is diminished. Acute coronary insufficiency develops when there is a discrepancy between the demands of the myocardium and the available oxygen. In the presence of coronary sclerosis, shock is superimposed on an already inadequate circulation. Myocardial ischemia results; when the ischemia is severe or protracted, infarction may develop without coronary occlusion. There should be prompt and adequate replacement of blood to prevent shock and avoid coronary insufficiency. If bleeding continues or recurs, early operation is imperative.

The choice between death from postmaturity and death from induction of labor

▶ IN THE JANUARY 11, 1958, issue of *The Lancet*, G. F. Gibberd, M.S., attempts to estimate the saving of life that could be achieved by preventing postmaturity. The study is based on the records of 8,503 deliveries of viable infants, of which 7,965 were delivered after the thirty-sixth week of gestation. The estimate of risk from postmaturity was based on the incidence of fetal and neonatal deaths in which anoxia was the only clear explanation for the fatality. In pregnancies believed to have completed 41 weeks or more, not more than 1.1 per cent of infants were lost because of postmaturity itself. However, anoxia is a danger that attends every fetus regardless of its maturity, and the corresponding figures for pregnancies that completed 37, 38, 39, or 40 weeks are 2.6, 2.4, 0.4, and 0.6 per cent respectively. In general terms the 0.85 per cent fetal loss from anoxia when labor occurs in the month preceding the forty-first week can be compared with the 1.1 per cent loss in the month after the forty-first week—a difference of 0.25 per cent. If an infallible and entirely safe method of induction of labor were used immediately before the forty-first week of pregnancy was completed, no more than 6 babies in every 1,000 inductions would theoretically be saved. An appreciation of these figures is important in considering routine avoidance of postmaturity by induction of labor with an imperfect method. There is reason to believe that, in postmaturity, artificial rupture of the membranes carries with it greater dangers to the fetus than those the interference is designed to circumvent. For those who are impressed with the fallibility and dangers of all the presently-known methods of induction the management of postmaturity will remain a difficult problem. In uncomplicated cases, it is probably better to avoid the treatment of postmaturity altogether than to embark on a rigid policy of prevention.

Digitalis intoxication

▶ A STUDY OF 40 selected cases of digitalis intoxication is presented with special reference to causative chemical and human factors by Morton W. Shrager, M.D., in the December 1957 issue of the *A.M.A. Archives of Internal Medicine*. Age was not found to be a barrier to effective use of digitalis. The type of heart disease was not significant in comparison with controls who did not have toxicity. Digitoxin produced severer toxicity with fewer warnings than did digoxin. Nausea and vomiting were the most prominent symptoms, but anorexia may be an early symptom of intoxication. "Neurologic" symptoms were a common manifestation, but these were usually accompanied by gastrointestinal symptoms. Failure to attribute advancing congestive heart failure to digitalis intoxication may be a serious and not uncommon error. Of the cases studied, 80 per cent were felt to have been preventable by attending physicians, and 88 per cent of these could be attributed to errors in dosage. A common error, responsible for 9 cases (23 per cent) of toxicity, was an attempt to control intractable failure by high maintenance dosage or by adding frequent small supplementary doses to an already adequate maintenance dose. A commoner and insidious error was the failure of physicians to frequently follow up patients who were receiving relatively normal maintenance dosage of digitalis preparations. The most frequent offending dose in this series was 0.2 mg. of digitoxin daily and 0.5 mg. of digoxin daily, although toxicity developed in patients receiving 0.15 and even 0.1 mg. of digitoxin.

Clinical experience with Panafil

▶ THE USE OF A PROTEOLYTIC ENZYME in 106 infected lesions is described by Joseph M. Miller, M.D., George C. Godfrey, M.D., Milton Ginsberg, M.D., and Constantine J. Papastrat, M.D., in the December 1957 issue of *Postgraduate Medicine*. The substance used was Panafil ointment, which contains 10 per cent commercial papain, 10 per cent urea, and 0.5 per cent chlorophyll in a solution of a borate buffer with a pH of 6.2. The fundamental principle in use of Panafil is the provision of effective contact between the ointment and the susceptible substrates of the wound. The ointment should be applied once a day in less severe degrees of infection and at least twice daily in more florid infections. The best results in treatment of infected lesions were achieved in cases in which complete exteriorization of the lesion was possible, since maximal action of the enzymes was produced only when there was adequate drainage. The presence of infected fascia and bone which resist digestion by papain although denatured, and a poor blood supply to the affected area, will produce a poor result. Panafil should not be used for treatment of lesions of the cavities of the body unless they communicate with the external surface of the body. One of the antibacterial agents should be administered systemically when severe infection is being treated with this ointment. In 106 lesions that occurred in 100 patients, results were poor in 5, and in these the blood supply to the affected extremity was very poor. There were no toxic effects, and no sensitivity to the ointment was observed.

Practical aspects of patient protection in diagnostic roentgenography

▶ IN THE JANUARY 15, 1958, issue of the *New York State Journal of Medicine*, Nathaniel Finby, M.D., says that diagnostic radiography contributes a small accumulated dose of ionizing radiation to the general population, but the dosage is well below background radiation. There is no evidence of harm to the individual patient from ordinary diagnostic procedures, but there are genetic effects that may be of great importance for future generations. To keep ionizing radiation dosage to the gonads of young people to a minimum, special training in the problems of radiation protection is important. Procedures used by nonradiologists are in general much less precise and result in higher gonadal and somatic doses to patients. The best possible balance between radiographic exposure and diagnostic information should be sought. Radiographic examination should not be a routine procedure. The radiologist should be consulted regarding the frequency and extent of any survey radiographic studies. The previous radiographic exposure of a patient should be considered.

Good x-ray equipment is necessary, and the hazards to the patient of exposure will vary directly with the age and inversely with the cost of the equipment. All radiographic machines should be checked to rule out errors of manufacture or installation. Added filtration and higher kilovoltage spare the patient unnecessary radiation without impairing diagnostic quality. A leaded diaphragm or preferably a cone or cylinder of appropriate size should be used to delimit and collimate the x-rays. The optimum is a diaphragm that can be easily changed, absorbs all direct radiation outside the film edge, and outlines the

field to be examined by a light beam on the patient and cassette. This ideal cone should have an inherent method of marking the exposed film to show that proper coning has been used.

The most significant source of radiation to the patient in diagnostic radiography comes from fluoroscopic examinations. This danger is heightened by the fact that great numbers of these examinations are made by unskilled operators with unsafe machines. The mobile or portable x-ray unit should be used only when absolutely necessary. Preliminary studies indicate that a new lead glass fabric apron has protective value. Finally, it is recommended that patients keep a diary of radiation exposure to provide the physician with a general appraisal of previous exposure and to prevent unnecessary repetitions.

Pneumoperitoneum after gastroscopy

▶ WRITING IN THE JANUARY 1958 issue of the *American Journal of Gastroenterology*, Clayton K. Stroup, M.D., and Donald K. Pine, M.D., say that pneumoperitoneum following gastroscopy has been distinguished by its innocuous course and a perforation small enough to escape detection at laparotomy. Postgastroscopy pneumoperitoneum is a relatively rare occurrence. Including the authors' case, there have been 20 reported instances since the introduction of the Wolf-Schindler gastroscope 24 years ago. There is apparently a distinct difference in the size and type of perforation since the introduction of the solid rubber tip. Previously, the sponge rubber tip was associated with gross tears of the stomach that were amenable to surgical repair. In 11 subsequent cases the patient either had a minute perforation that escaped detection at laparotomy (7 cases) or recovered spontaneously without operation. The benign course is probably due to the fact that the perforation is small and probably seals rapidly. Also the absence of food in the patient prepared for gastroscopy probably explains the absence of peritonitis. Rupture of the stomach during gastroscopy should be suspected if the stomach fails to distend on inflation. Abdominal distress, shoulder pain, and, most important, tympanitic abdominal distention that cannot be relieved by eructation may develop. Ordinarily, confirmation of the diagnosis by x-ray is simple. In view of the favorable response to medical treatment and since there has been a uniform inability to demonstrate the perforation, the authors urge conservative management.

Teamwork in the treatment of Parkinson's disease

▶ ACCORDING TO Lewis J. Doshay, M.D., in the January 1958 issue of *Postgraduate Medicine*, since the general practitioner is responsible for the major part of the care of the patient with Parkinson's disease and sees the patient at the start of the illness, he should keep abreast of the latest therapeutic advances and should institute intensive treatment from the beginning, when the greatest good can be achieved. He should encourage the patient by pointing out the favorable aspects of the disease: it does not shorten life, and tends to protect from more serious conditions such as cancer and cardiac disease. The patient should be told that the disease affects the basal ganglion and not the brain itself.

The patient should be seen monthly if possible. Many new drugs are available for treatment of Parkinson's disease, and this is important because patients tend to tire of any remedy during the long siege of the illness, and some patients are constantly looking for some new treatment or "cure." Also drugs tend to lose their effectiveness with the passing of time and other effective agents must be available to replace them. Physical therapy is important in every patient with rigidity. It should be given regularly and should consist of vigorous and deep massage, passive stretching of muscles, and active exercises in the gymnasium or treatment with special equipment and calisthenics at home.

Many elderly patients are beyond help from conservative therapy because of poor tolerance and hypersensitivity to all drugs or because of disability due to neglect. These patients need the help of the neurosurgeon. In the last 2 decades various segments of the nervous system have been experimentally severed, but such attempts were unsuccessful because of lack of knowledge of the exact areas or pathways involved. Recently procedures have aimed specifically at the globus pallidus, but thus far favorable results have been obtained only in young patients with unilateral involvement.

The patient's family can help by adopting a realistic attitude toward the disease, by not unnecessarily restricting the patient, and by helping him in matters beyond his capacity. The community could aid the patient with Parkinson's disease by establishing a Parkinson foundation to promote research and to help the physician with placement and rehabilitation facilities for disabled patients and those in advanced stages of the disease.

Osteotomy-bunionectomy for hallux valgus

▶ THE TECHNIC AND RESULTS of an operation for hallux valgus are described by C. Leslie Mitchell, M.D., Joseph L. Fleming, M.D., Richard Allen, M.D., Christopher Glenney, M.D., and Glenn A. Sanford, M.D., in the January 1958 issue of the *Journal of Bone and Joint Surgery*. The role of metatarsus primus varus in the etiology of hallux valgus has been emphasized for many years, but regardless of the pathomechanics of hallux valgus, if the toe and the metatarsal deformity are not simultaneously corrected, many patients will have recurrent deformity. This is true because the hallux cannot articulate normally with a metatarsal that is pointing medially unless it is in varus deformity, a condition that the modern shoe will not permit.

The operative procedure consists of osteotomy of the distal portion of the first metatarsal, lateral displacement and angulation of the head of the metatarsal, with exostosectomy and medial capsulorrhaphy. A dorsal medial incision is made on the foot, curving above the bursa and callous. A Y-shaped incision is made through the medial capsule and the periosteum of the first metatarsal. The neck and shaft of the metatarsal are then stripped subperiosteally. The exostosis is removed flush with the shaft of the metatarsal. Two holes are drilled, one ½ inch and the other 1 inch from the articular surface, and a suture is placed through them. A double incomplete osteotomy is then done ¾ inch from the articular surface between the drill holes and perpendicular to the shaft. The osteotomy is completed proximally with a thin saw blade. The metatarsal head is then shifted laterally until the lateral spur locks over the proximal shaft, and the head is angulated slightly laterally so that its articular surface parallels the axis of the second metatarsal. Medial capsulorrhaphy is done with the hallux in slight overcorrection. Splints of padded tongue depressors are applied with the toe in slight overcorrection and in 5 degrees of plantar flexion. This splint is worn 10 days. After suture removal a short walking cast is applied to the leg, and this is worn 4 weeks.

In a study of 59 patients who had 100 operations, the results were generally satisfactory in 82 per cent of the operations. Sixty-two per cent of the patients resumed normal activities after 3 months, and 66 per cent wore normal shoes.

Status of corticotropin and the steroid hormones in therapy of allergic disease

▶ ACCORDING TO Ralph Bookman, M.D., in the December 14, 1957, issue of the *Journal of the American Medical Association*, corticotropin (ACTH) and the adrenal steroids are palliative agents in the treatment of allergic disease; they relieve symptoms without affecting the underlying allergic state. The most important and also most indistinct action of these drugs is the

suppressive effect on the pituitary and adrenal glands, which is seen morphologically at postmortem, and in frequent reports of adrenal failure in such stressful conditions as surgery and acute infection. There are also dangers inherent in the drugs themselves. Symptoms of infection can be camouflaged and the infection can become uncontrolled. The development of peptic ulcer or gastrointestinal hemorrhage may be sudden and alarming. Osteoporosis with fractures, thrombophlebitis, and psychoses are other conditions in which these drugs may be indicted. Only in the self-limiting types of allergic reactions, such as drug or penicillin sensitivities, can we justify routine use of corticotropin or steroids. These drugs may be used in the small group of patients who either do not respond to time-honored procedures or who develop isolated and refractory episodes of their disease.

Acute urinary suppression after ureteral catheterization

▶ IN THE DECEMBER 5, 1957, issue of the *New England Journal of Medicine*, Jonas H. Sirota, M.D., and Lester Narins, M.D., report 3 cases in which severe oliguria and rapidly progressive azotemia followed uncomplicated cystoscopic ureteral manipulation and retrograde pyelography. Repeat cystography in all 3 cases revealed this to be the result of bullous edema of the ureteral orifices with obstruction to urinary flow. The edema was thought to represent an idiosyncratic hypersensitivity to trauma, formaldehyde used for catheter sterilization, or the contrast medium used for retrograde visualization. All 3 patients became critically ill. Severe hypertensive encephalopathy with convulsions, a Grade 3 retinopathy, and electrocardiographic changes developed in one. A second had severe congestive heart failure with pulmonary edema and life-threatening hyperkaliemia. Oliguria was dramatically relieved in all cases on the fifth day by the insertion of ureteral catheters, with eventual complete recovery. Among the clinical features that distinguish these cases from those due to tubular necrosis are the absence of the usual predisposing factors for acute tubular necrosis, the more rapid and severe rise in blood pressure in these cases, the possible absence of the fixed low specific gravity that is usually found with tubular necrosis, marked fluctuations that may occur in the daily volume of urine, and the signs of a urinary tract infection that are usually found in patients with obstructive ureteropathy, such as more marked fever and leukocytosis, greater pyuria and costovertebral angle tenderness, and presence of suprapubic tenderness.

This iatrogenic syndrome should be suspected in any case in which severe oliguria or anuria follows bilateral ureteral catheterization. In such cases cystoscopy should be done again, and, if obstructive edema of the ureteral orifices is found, ureteral catheters should be left indwelling for several days. Previous case reports of anuria after cystoscopy are probably similar in origin. The term "reflex anuria" is a dangerous catch-all misnomer leading to misguided therapeutic attempts.

BOOK REVIEWS

▶ *Books for review which were received during the period from January 5 to February 5 are listed on advertising pages 138 and 140. Reviews of these books will be published as space permits.*

▶ THE HEALING OF WOUNDS. A Symposium on Recent Trends and Studies. Edited by Martin B. Williamson, Ph.D., Professor of Biochemistry, Stritch School of Medicine, Loyola University, Chicago. Cloth. Pp. 202, with illustrations. Price $7.00. McGraw-Hill Book Company, Inc., 330 West 42nd Street, New York 36, 1957.

This book presents the accumulated knowledge on the physiologic process of wound healing. It pays basic attention to the smallest elements, the molecular structures and their effect on healing, yet it does not neglect the biologic aspects. Material discussed includes the metabolism of proteins and amino acids during wound healing, role of the ground substance in wound healing, methionine in wound healing during protein starvation, pharmacologic considerations of sulfur compounds in tissue regeneration, vitamin C and wound healing, hormonal influences on granulation tissue formation, collagen in wound healing, healing of muscle tissue, incisions used in gynecology, and clinical approaches to the concepts of wound healing.

The book is not entirely laboratory and research material; there is practical discussion of the failure of wound healing as well. The relation between the number of sutures and healing or nonhealing shows that number *per se* apparently has little effect. Obesity, malnutrition, surgery in hot weather, and hemorrhage all have an effect on healing.

The book can be recommended as background reading for anyone who inflicts and cares for wounds, or who is interested in the factors that influence healing.

A. P. ULBRICH, D.O.
D. KOPRINCE, D.O.

▶ CLINICAL APPLICATIONS OF SUGGESTION AND HYPNOSIS. By William T. Heron, M.A., Ph.D., Professor of Psychology, University of Minnesota, Minneapolis, Minnesota. Ed. 3. Cloth. Pp. 165. Price $3.75. Charles C Thomas, Publisher, 301-327 E. Lawrence Ave., Springfield, Ill., 1957.

The recent rise in popularity of hypnosis as a medical instrument has brought out a rash of books on the subject. Some of them are large, impressive tomes and others, like this one, are small and compact. The practical nature of this little book is attested by its popularity; appearing first in 1950, it has continued to be accepted to the present third edition.

The author concentrates upon the purpose stated in the title and avoids discussion of the theoretical or historical aspects of the subject. The 160 pages of text are divided into twelve chapters and a bibliography. These chapters are headed "Introduction," "Suggestion and Suggestibility," "The Professional Use of Hypnosis," "How to Approach Your Patient," "Degrees of the Hypnotic State," "Methods of Induction," "Posthypnotic Suggestions," "Precautions in the Use of Hypnosis," "Group Hypnosis," "Case Histories," "The Routines for the Production of Clinical Hypnosis," and "The Tape Recorder in Patient Conditioning." The last chapter was written by James D. Jacoby, D.D.S., and is introduced by the statement, "One of the principal obstacles in the routine use of hypnosis by the profession has been *the lack of confidence by the doctor in himself.*" This could easily have been an introduction to the book itself. The author, however, does state, "In the use of hypnosis the professional man should think of himself in the role of teacher." This is an essential difference between the older days of hypnosis when an authoritarian approach to induction was used. He feels that hypnosis is and should be considered a natural psychologic phenomenon and the hypnotist's role is simply that of an instructor or teacher who helps the subject to accomplish the condition of hypnotism.

The rest of the book is kept on a somewhat superficial level, but has a wealth of practical suggestions, which are al-

ways of interest to practicing physicians. The book serves the purpose intended for it by its author, and to that extent it is recommended.

THOMAS J. MEYERS, Ph.D., D.O.

▶ MANAGEMENT OF THE PATIENT WITH HEADACHE. By Perry S. MacNeal, M.D., F.A.C.P., Physician to Pennsylvania Hospital and Benjamin Franklin Clinic, Philadelphia; Assistant Professor of Clinical Medicine, Jefferson Medical College; and Bernard J. Alpers, M.D., Sc.D. (Med), F.A.C.P., Professor and Head of the Department of Neurology, Jefferson Medical College; Consulting Neurologist to Benjamin Franklin Clinic of Pennsylvania Hospital, Philadelphia; and William R. O'Brien, M.D., F.A.P.A., Psychiatrist and Head of the Department of Psychiatry, Pennsylvania Hospital; Associate Physician to the Benjamin Franklin Clinic of the Pennsylvania Hospital; Instructor in Psychiatry, Jefferson Medical College. Cloth. Pp. 145. Price $3.50. Lea & Febiger, Washington Square, Philadelphia 6, 1957.

"Headache. With this one word, patients can present a symptom so common—yet so significant—that it becomes an immediate and direct challenge to the physician. From migraine to brain tumor, probably no other symptom has such hidden meanings." This concise quotation explains why every physician needs to study the most recent theories about headache's causes and therapies. Its treatment has advanced beyond simple sedatives and analgesics because of the recently apparent psychologic and neurologic causes.

Headache is often a manifestation of deep emotional disturbance, and therefore the correction of the patient's personal problems is stressed in headache therapy. Technics of differential diagnosis are demonstrated to help the physician in discriminating between psychologic headaches and those caused by cardiovascular disorders and infections so that their respective remedies can be best applied.

This is a small volume, and yet the information contained within it will enlighten every general practioner. Perhaps its greatest value lies in its contribution to headache classification, a great aid both diagnostically and therapeutically. The work is clinically sound and is well worth examining.

▶ CALDERWOOD'S ORTHOPEDIC NURSING. Revised by Carroll B. Larson, M.D., F.A.C.S., Professor of Orthopedic Surgery and Chairman of Department of Orthopedic Surgery, State University of Iowa; Marjorie Gould, R.N., B.S., M.S., Supervisor of Orthopedic Nursing, State University of Iowa; formerly Instructor, Advanced Orthopedic Nursing, Boston University. Ed. 4. Cloth. Pp. 701, with illustrations. Price $5.75. The C. V. Mosby Company, 3207 Washington Blvd., St. Louis 3, 1957.

The fourth edition of this classic text on orthopedic nursing contains new methods of treatment that have come into use since the previous edition. The authors have made other additions, based on deficiencies, omissions, and underemphasis pointed out by students and faculty members, that they believe improve the book in both content and reference value.

The lesson units are divided according to type of disease and resultant deformity to be treated. New illustrations show recent developments in therapy.

▶ CLINICAL PATHOLOGY DATA. Compiled by C. J. Dickinson, B.A., B.Sc., B.M., M.R.C.P. Medical Registrar, Middlesex Hospital; (Late Resident Medical Officer, University College Hospital; Captain R.A.M.C.) With a Foreword by C. E. Dent, Ph.D., M.D., F.R.C.P., F.R.I.C. Professor of Human Metabolism in the University of London. Ed. 2. Cloth. Pp. 91. Price $4.00. Charles C Thomas, Publisher, 301-327 East Lawrence Avenue, Springfield, Illinois, 1957.

The second edition of this book of tables for rapid evaluation of clinical laboratory findings is nearly four times the size of its predecessor. The material has been regrouped according to diseases and with numerous cross references between diseases and tests. The author believes that this new arrangement will disarm criticism of "penny-in-a-slot" medicine that was conceivably justified regarding some parts of the first edition.

Pages are divided into four columns that show at a glance the test to be made and the body tissue or fluid used in the examination, normal values for the factor to be determined, disease conditions that raise such values, and those that lower them.

An unusual inclusion is a short section with brief discussion of eleven tests that the author considers unnecessary. He is strengthened in what may appear arbitrary opinions by the concurrence of a number of other pathologists.

This book could become indispensable to the physician who makes constant use of laboratory tests of blood and its constituents, urine, feces, cerebrospinal fluid, and body effusion fluids.

▶ MANUAL OF PHARMACEUTICAL LAW. By William Pettit, Lecturer in Pharmaceutical Jurisprudence, University of Pittsburgh. Ed. 2. Cloth. Pp. 303, with illustrations. Price $4.50. The Macmillan Company, 60 Fifth Ave., New York 11, 1957.

Changes in federal and state laws relating to pharmacy and pharmacists are recorded in this second edition of the manual for students and practicing pharmacists. The book has been completely rewritten.

Theory and background of the laws in the United States as well as international aspects are included. Important federal laws, presented in their full text, have been enlarged and reflect legislation enacted since 1949. Additional laws and findings in state and regional cases have been cited, and subjects that the author considers most adaptable for class use are included. The third appendix contains a two-page glossary of common legal terms.

▶ THE STORY OF PEPTIC ULCER. Conceived by Richard D. Tonkin, M.D., F.R.C.P., Westminster Hospital, London. Characterised by Raymond Keith Hellier, F.R.S.A. Cloth. Pp. 71, with illustrations. Price $2.25. W. B. Saunders Company, West Washington Square, Philadelphia 5, 1957.

Rarely can one thoroughly agree with a publisher's foreword. This is a rare instance, and an excerpt from the foreword, ". . . medical advice can be sound and scientific . . . and . . . represent delightful and charming reading," perfectly expresses this 71-page book. In Part I the patient is introduced to his disorder and given necessary facts concerning ulcer. Part II arms him with suggestions for outwitting the ulcer.

The authoritative text, rife with optimistic drawings, offers a commonsense approach both to the peptic ulcer and the patient who has one. For example, those ulcer bugaboos—tea, coffee, alcohol, and nicotine—are discussed without benefit of the usual sanctimony. It is simply suggested that those who continue to indulge would do well to imbibe and smoke directly after a meal, tricking the excess acid thus stimulated into helping digest the meal.

The book is meant to inform, interest, and amuse the patient with ulcer. The author and his artist have thoroughly succeeded. It should be an invaluable aid both to the patient and his physician. Perhaps its greatest therapeutic value lies in the joyous air of optimism that permeates both text and illustrations.

▶ THE INFANTILE CEREBRAL PALSIES. By Eirene Collis, Assistant to the Director of the Cerebral Palsy Unit, Queen Mary's Hospital for Children, Carshalton, and Honorary Adviser to the Cerebral Palsy Clinics of the Ospedale Maggiore, Crema, and of the Istituto Pio dei Rachitici, Milan, Italy; and W. R. F. Collis, Director of Paediatrics, Rotunda Hospital; Physician, National Children's Hospital, Dublin; Chairman, National Association for Cerebral Palsy in Ireland; and William Dunham, Physician to the Department of Physical Medicine, Charing Cross Hospital; Consultant in Cerebral Palsy to the London County Council; and L. T. Hilliard, Consultant Psychiatrist and Physician Superintendent, Fountain Hospital for Mentally Defective Children, London; and David Lawson, Physician Superintendent and Consultant Paediatrician; Director of Cerebral Palsy Unit, Queen Mary's Hospital for Children, Carshalton. Cloth. Pp. 100. Price $3.00. Charles C Thomas, Publisher, 301-327 E. Lawrence Ave., Springfield, Ill., 1957.

Cerebral palsy has created a great deal of interest among laymen and physicians alike in recent years. Much research has been conducted, and much literature has been produced. However, according to the Foreword in this compact volume, many of today's therapeutic specialists get so involved in technics

that they ". . . forget that their primary responsibility and only rational aim is the training of the child for living. . . . They forget the child as a person. They think of him as a spastic limb. . . ." The principles of diagnosis and treatment which are presented here are based on this element of understanding in the belief that gentleness and kindness help an affected child to help himself.

Case histories and explicit instructions for each type of cerebral palsy—generalized spasticity, hemiplegia, variable rigidity, athetoid, and ataxic—are interwoven. Because of its practicality, the reading of this excellent monograph makes one feel hopeful about the "humane and satisfying rôle of training the child with cerebral palsy."

▶ **THE HANDICAPPED AND THEIR REHABILITATION.** Edited by Harry A. Pattison, M.D., F.A.C.P.; Director of The Potts Memorial Institute, Inc. Cloth. Pp. 944, with illustrations. Price $14.75. Charles C Thomas, Publisher, 301-327 E. Lawrence Ave., Springfield, Ill., 1957.

Much progress has been made during recent years in occupational therapy, physical medicine, and psychiatry, as they apply specifically to the problems of rehabilitation. However, the contributors to this book feel that helping the handicapped person to adjust successfully to everyday life is a job for everyone. The field of rehabilitation encompasses the home, the school, the church, and industry, as well as all branches of medicine. And, rehabilitation involves the blind, the deaf, the mentally ill, the aged, the crippled, and the amputees. Those with speech difficulty, those weakened by tuberculosis, heart disease, or diabetes, and those inconvenienced by a colostomy or laryngectomy also need attention. Each case is unique and the goal of the rehabilitation team should be the co-ordination of his body as a whole along with the unification of the physical aspects and the individual's psychologic acceptance of the disability. Only when this unification is complete can the demands of reality be met.

Besides discussing the philosophy and history of rehabilitation, special problems are considered, such as marriage between handicapped persons, the attitudes of prospective employers and insurance companies, and the relationship of state and federal legislation to the handicapped.

The text is interestingly written in a straightforward style. It is an outstanding addition to the literature covering the newly recognized field of rehabilitation.

▶ **SURGERY OF HEAD AND NECK TUMORS.** By Hayes Martin, M.D., Attending Surgeon, Memorial Hospital; Associate Professor of Clinical Surgery, Cornell University Medical College, New York. Cloth. Pp. 430, with illustrations. Price $18.50. Paul B. Hoeber (Medical Book Department of Harper & Brothers), 49 E. 33rd St., New York 16, 1957.

Attention to minute detail and infallible accuracy are essential in a book of this type. Dr. Martin's instructions for surgical maneuvers are explicit and are accompanied by excellent step-by-step drawings. His descriptions of technics are based on those which repeatedly have given highly satisfactory results in his experience. A list of surgical instruments used in each operation is included. The table of contents is particularly good, enhancing the volume's value as a quick reference.

The text is directed toward the general surgeon, as the author feels that broad experience in general surgery is a necessary prerequisite for success in head and neck surgery. A discussion of preoperative and postoperative considerations, both physical and psychologic, introduces each section, and the whole is characterized by thoroughness and readability.

▶ **BONE DISEASES** in Medical Practice. By I. Snapper, M.D., Director of Medicine and Medical Education, Beth-El Hospital, Brooklyn, N.Y. Cloth. Pp. 229, with illustrations. Price $15.00. Grune & Stratton, 381 Fourth Ave., New York 16, 1957.

The observation that from 30 to 50 per cent of bone substance consists of living tissue sharply contradicts the attitude that the skeletal structure is only a static, supporting framework for the body. Increased knowledge concerning the normal and pathologic physiology of bone tissue has begun what the author calls "the recent wave of enthusiasm" among general practitioners for better understanding of skeletal disease. This text is designed "to present the subject in such a way that it can be used in the daily practice of medicine, emphasizing that in many skeletal diseases a clear-cut diagnosis can be made which will usually point the way to rational and often remarkably rewarding therapy." Certainly the physician will find the book a wonderful tool to that end.

Special mention should be made of the exceptionally fine reproductions of roentgenograms which are included to illustrate the various skeletal diseases. A gravure process of printing was used as a vehicle for multiplying copies of these illustrations, already improved and reproduced by "new photo-electronic methods." The clarity of these plates is well matched by the lucidity of the written material.

▶ **CARDIOVASCULAR REHABILITATION.** Edited by Paul Dudley White, M.D., Massachusetts General Hospital, Boston; Howard A. Rusk, M.D., Director, Institute of Physical Medicine and Rehabilitation, New York University-Bellevue Medical Center, New York; Bryan Williams, M.D., Clinical Instructor in Medicine, Southwestern Medical School, University of Texas, Dallas; and Philip R. Lee, M.D., Department of Internal Medicine, Palo Alto Clinic, Palo Alto, California. Cloth. Pp. 155. Price $6.50. McGraw-Hill Book Company, Inc., 330 West 42nd St., New York 36, 1957.

The proceedings of a conference on rehabilitation of the cardiovascular patient are presented in discussion style in this small volume. The quality of this conference is attested by the professional stature of its participants: the editors of this book and the many specialists who contributed from their knowledge and experience.

Perhaps it would seem that such a book is valuable only for physicians particularly concerned with a specialized field. Quite the contrary—a discussion of this kind has as many applications as it has ramifications, and any physician would profit from the atmosphere of professional excellence and human concern vicariously set before him.

▶ **UNDERSTANDING YOUR PATIENT.** Edited by Samuel Liebman, M.D., Medical Director, North Shore Hospital, Winnetka, Ill.; Clinical Assistant Professor of Psychiatry, University of Illinois College of Medicine. Cloth. Pp. 170. Price $5.00. J. B. Lippincott Company, E. Washington Square, Philadelphia 5, 1957.

An interesting chapter on the unique position of the physician in society, including comments from well-informed persons in various fields, opens this series of lectures on understanding the problems of patients. The general subject is currently popular; this book contains a good deal of common sense on many phases of it. Various lecturers consider the problems of each age group, including the preschool child, the school child, the teenager, the adult, and the older generation. There are special sections on premarital and marital counseling.

The book is designed to give general knowledge to the nonpsychiatric practitioner, to provide "a legitimate extension of . . . services to include proper treatment of that multitude of patients who are maladjusted but not severely disturbed." The book is easy to read and contains much of value along these lines.

▶ **URINE AND THE URINARY SEDIMENT** A Practical Manual and Atlas. By Richard W. Lippman, B.S., M.D., Fellow of the John Simon Guggenheim Memorial Foundation. Ed. 2. Cloth. Pp. 140, with illustrations. Price $8.50. Charles C Thomas, Publisher, 301-327 E. Lawrence Ave., Springfield, Ill., 1957.

A series of color plates showing the microscopic appearance of urine and urinary sediment in various conditions form the most significant part of this book. Brief descriptions of laboratory procedures are included, with the object of providing a guide for the one relatively inexperienced in laboratory work. The high quality of the photographic reproductions, the methodical descriptions, and succinct clinical correlations combine to make a work most helpful to the diagnostician.

▶ A SYNOPSIS OF OTORHINOLARYNGOLOGY. By John F. Simson, F.R.C.S., Consultant Surgeon, Ear, Nose, and Throat Department, St. Mary's Hospital, London, and Paddington General Hospital; etc.; Ian G. Robin, F.R.C.S., Consultant Surgeon, Ear, Nose, and Throat Department, St. Mary's Hospital, London, and Royal Northern Hospital, London; etc.; and J. Chalmers Ballantyne, F.R.C.S., Honorary First Assistant to Ear, Nose, and Throat Department, St. Mary's Hospital, London; Consultant Surgeon, Ear, Nose, and Throat Department, Royal Northern Hospital, London; Assistant Director, Audiology Unit, Royal National Throat, Nose, and Ear Hospital, London; etc. Cloth. Pp. 443, with illustrations. Price $8.50. The Williams & Wilkins Company, Mount Royal and Guilford Aves., Baltimore 2, 1957.

Physicians studying for postgraduate specialty examinations, as well as nonspecialists who wish a quick referenec on the subject of otorhinolaryngology, will welcome this publication. Only the principles—not the details—of operative procedures are given; and because of rapid change in research concerning chemotherapy and antibiotics, only the generic term "systemic disinfection" is given when such therapy is indicated.

The book is arranged according to the section of the body, and then by the disorders relating to it. Each disease is described in outline form for quick reference, and the index further facilitates easy use by its extensive coverage.

▶ SYMPOSIUM ON DISEASES AND SURGERY OF THE LENS. Edited by George M. Haik, M.D., F.A.C.S., Diplomate, American Board of Ophthalmology; Professor of Ophthalmology and Head of the Department, Louisiana State University School of Medicine; Ophthalmic Surgeon, American College of Surgeons; Member, American Ophthalmological Society; Member, American Academy of Ophthalmology and Otolaryngology; Associate Editor, Elizabeth M. McFetridge, M.A. Cloth. Pp. 260, with illustrations. Price $10.50. The C. V. Mosby Company, 3207 Washington Blvd., St. Louis 3, 1957.

The proceedings of the Fifth Annual Session of the New Orleans Academy of Ophthalmology are presented in this volume. The first section consists of papers of a more formal type, while the second is a record of round-table discussions. Both parts, as the title of the book implies, concern only the lens of the eye. Contributions range widely in degree of excellence, as might be expected in any group of specialists.

▶ CLINICAL ORTHOPAEDICS. Number Ten. Editor-in-Chief, Anthony F. DePalma. Cloth. Pp. 367, with ilustrations. Price $7.50. J. B. Lippincott Company, E. Washington Square, Philadelphia 5, 1957.

The tenth edition of "Clinical Orthopaedics" is now available. The main section concerns affections of growth centers (epiphyses and apophyses), with chapters on various phases of the problem: developmental deviations, degenerative diseases, and trauma. Four more chapters constitute the conclusion of a symposium on the pathologic physiology of metabolic bone disorders, the beginning of which was published in the previous volume. There is a section on general orthopedics and another of items related to orthopedic practice: technics for treatment of fractures, management of spondylolisthesis and spondyloschisis, and factors involved in arthritis.

▶ ORTHOPEDICS FOR THE GENERAL PRACTITIONER. By William E. Kenney, M.D., Orthopedic Surgeon, Truesdale Hospital; Medical Director, Cerebral Palsy Training Center, Fall River, Mass.; formerly Instructor of Orthopedic Surgery, Yale University School of Medicine, New Haven, Conn.; and Carroll B. Larson, M.D., F.A.C.S., Professor of Orthopedic Surgery and Chairman of Department of Orthopedic Surgery, State University of Iowa, Iowa City, Iowa. Cloth. Pp. 413, with illustrations. Price $11.50. The C. V. Mosby Company, 3207 Washington Blvd., St. Louis 3, 1957.

The authors believe that the general practitioner needs help in his role of all things to all patients. They present this book to lighten his load and guide him in the special field of orthopedic surgery.

Each chapter deals with one anatomic location and lists the usual complaints pertaining to that location, together with the most likely diagnoses. Opposite each possible diagnosis appears the number of the page on which further information will be found for confirming the diagnosis and initiating treatment. The arrangement should be a great timesaver for the busy practitioner. If the physician is unsure of his diagnosis, the authors advise consultation.

The first chapter—the longest in the book—discusses orthopedic problems in childhood, stated to be quite different in certain aspects from those in the adult. Examples of all conditions are well illustrated. The pediatrician should profit by this section.

One seeming inconsistency may well be premeditated: that of minute directions for some treatment procedures and only sketchy descriptions of others. Those briefly covered may be cases the authors believe require the added care of an orthopedist.

The contents are indexed under both nouns and adjectives, making for quick reference.

▶ PSYCHOSOMATIC MEDICINE. A Clinical Study of Psychophysiologic Reactions. By Edward Weiss, M.D., Professor of Clinical Medicine, Temple University Medical Center, Philadelphia; O. Spurgeon English, M.D., Professor and Head of Department of Psychiatry, Temple University Medical Center, Philadelphia. Ed. 3. Cloth. Pp. 557, with illustrations. Price $10.50. W. B. Saunders Company, West Washington Square, Philadelphia 5, 1957.

The contents of the third edition of this fine textbook have been rearranged for the sake of the busy physician. General aspects of psychosomatic medicine are grouped in Part One, and application of these principles to the problems of specialty practices is made in Part Two. A table of contents as clear and complete as most indexes makes it easy to find whatever section the reader wants to study.

The authors are well known for their ability to express themselves on psychosomatic problems in commonsense language. Their discussion of the principles of development of psychosomatic illness, its diagnosis, and some of the everyday problems inherent in psychiatric management is the kind of writing that educates painlessly and permanently.

▶ INTRODUCTION TO BIOSTATISTICS. By Huldah Bancroft, Ph.D., Professor of Biostatistics, Tulane University School of Medicine, New Orleans. Cloth. Pp. 210, with graphs. Price $5.75. Paul B. Hoeber, Medical Book Department of Harper & Brothers, 49 E. 33rd St., New York 16, 1957.

The established physician as well as the medical student must have a working knowledge of statistics for accurate interpretation of research results and for application in preventive medicine. Without this knowledge, much of today's medical literature would be misunderstood and, as such, inapplicable to the doctor's daily practice. This basic introduction provides the reader with all the information necessary for the comprehension of modern biostatistics.

The text is prepared from mimeographed notes used in the teaching of biostatistics at Tulane University and covers, for example, tabulation, graphing, frequency distribution, variation, proportions, life tables, and bioassay. Presentation of the material is in nontechnical terms, and most of the samples are taken from clinical medicine.

The book is thorough and should prove useful to those who seek a better understanding of the application of statistics to medicine.

Correction

▶ In the article, "Intestinal Rupture of the Newborn. Report of Three Cases," by William G. Cheverton, D.O., and Milton Birnbaum, D.O., published in the December 1957 JOURNAL, the last sentence of the first paragraph beginning on page 273 should have read: "The gangrenous portion of the small intestine was resected, and a side-to-side anastomosis was performed." We regret the error.

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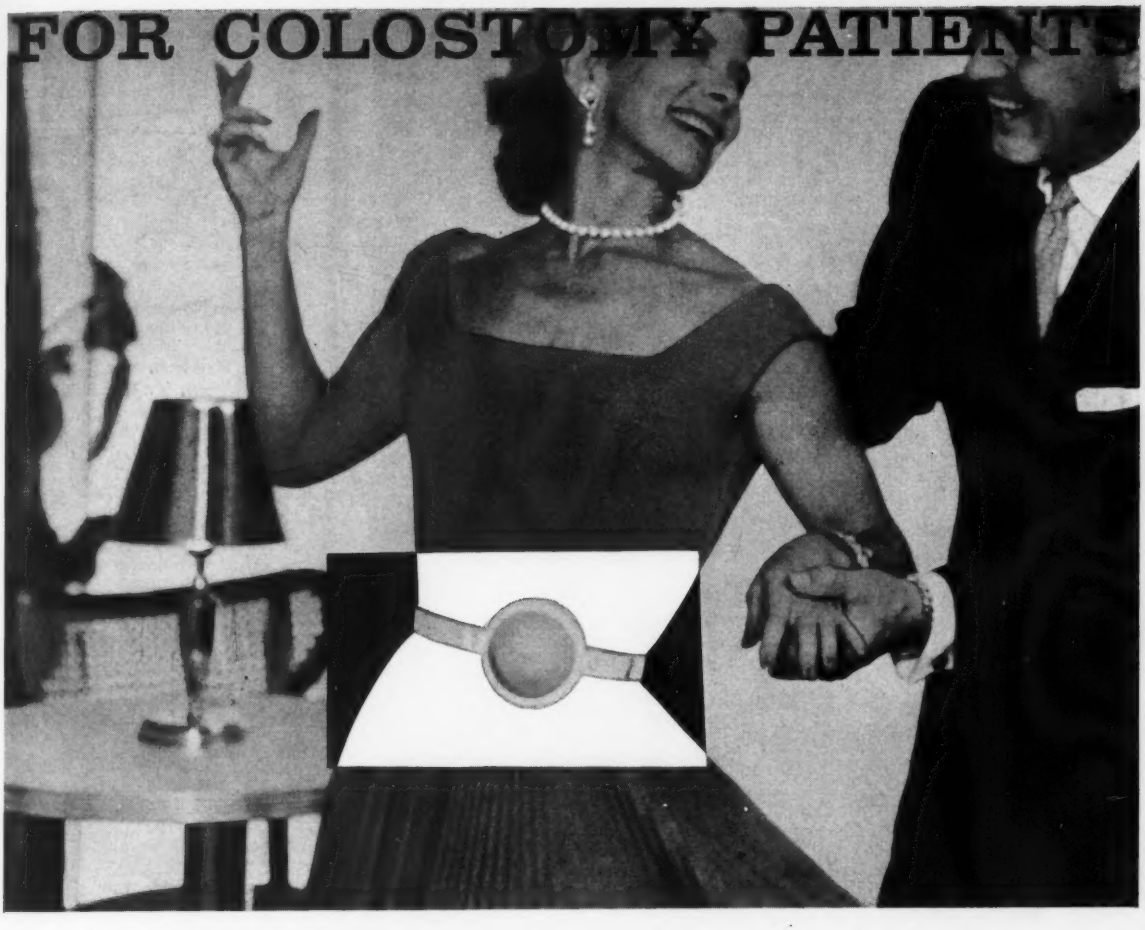

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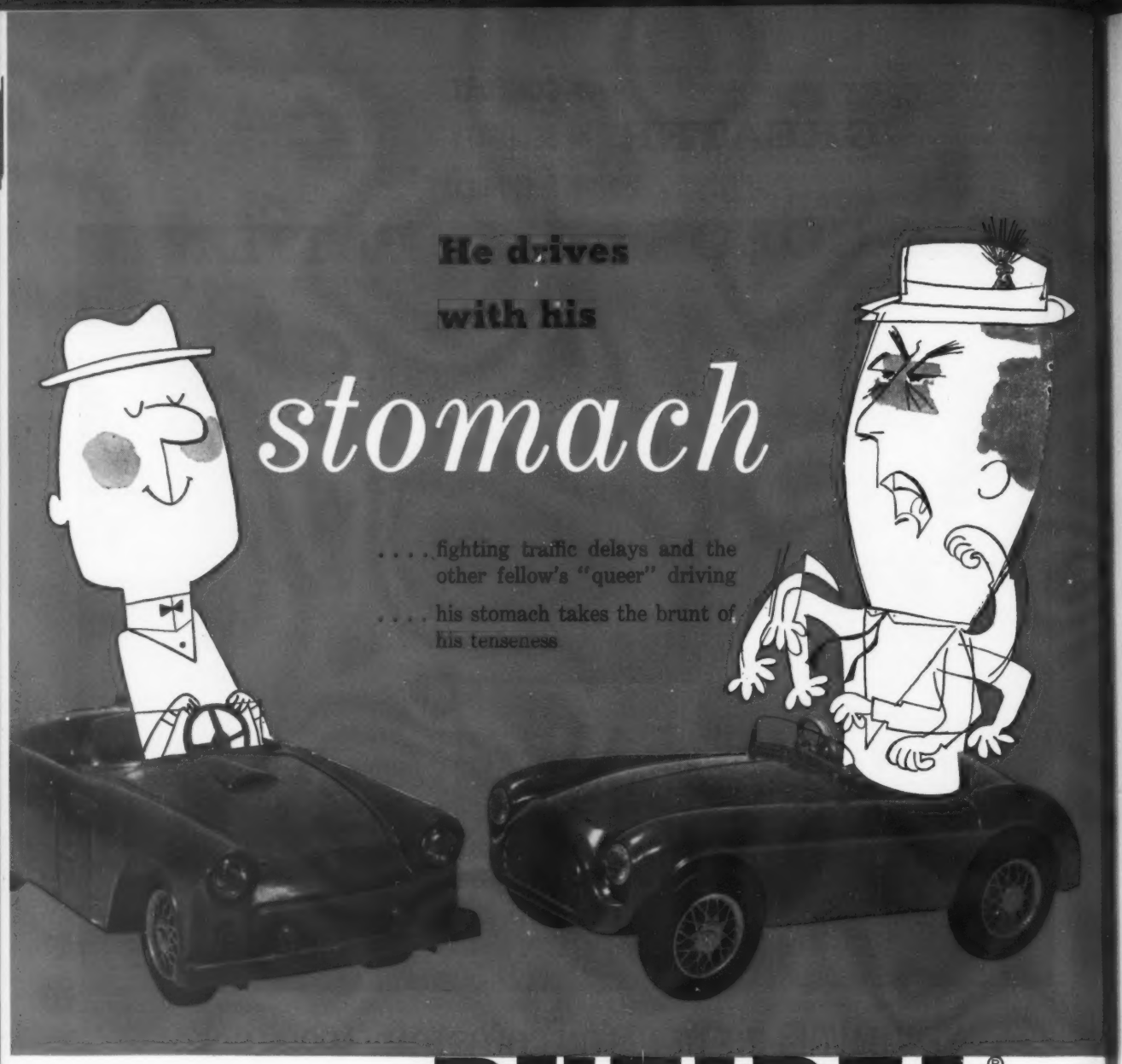
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Interpretation: Proliferative endometrium.

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Interpretation: Late secretory endometrium with pseudodecidual stromal development.

Biopsy photomicrographs courtesy of Anna L. Southam, M.D., New York, N.Y.

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Metrorrhagia	One or two 10-mg. tablets daily to day 25 (or for 10 days to establish cycle)	same as above
Amenorrhea (primary or secondary)	One 10-mg. tablet daily for 20 days to establish cycle	same as above
Oligomenorrhea	One 10-mg. tablet daily from day 5 to day 25*	same as above
Premenstrual Tension	One 10-mg. tablet daily from day 5 to day 25*	same as above
Dysmenorrhea	One 10-mg. tablet daily from day 5 to day 25	One 10-mg. tablet daily from day 5 to day 25
Inadequate Luteal Phase	One 10-mg. tablet daily from day 15 to day 25	One 10-mg. tablet daily from day 15 to day 25

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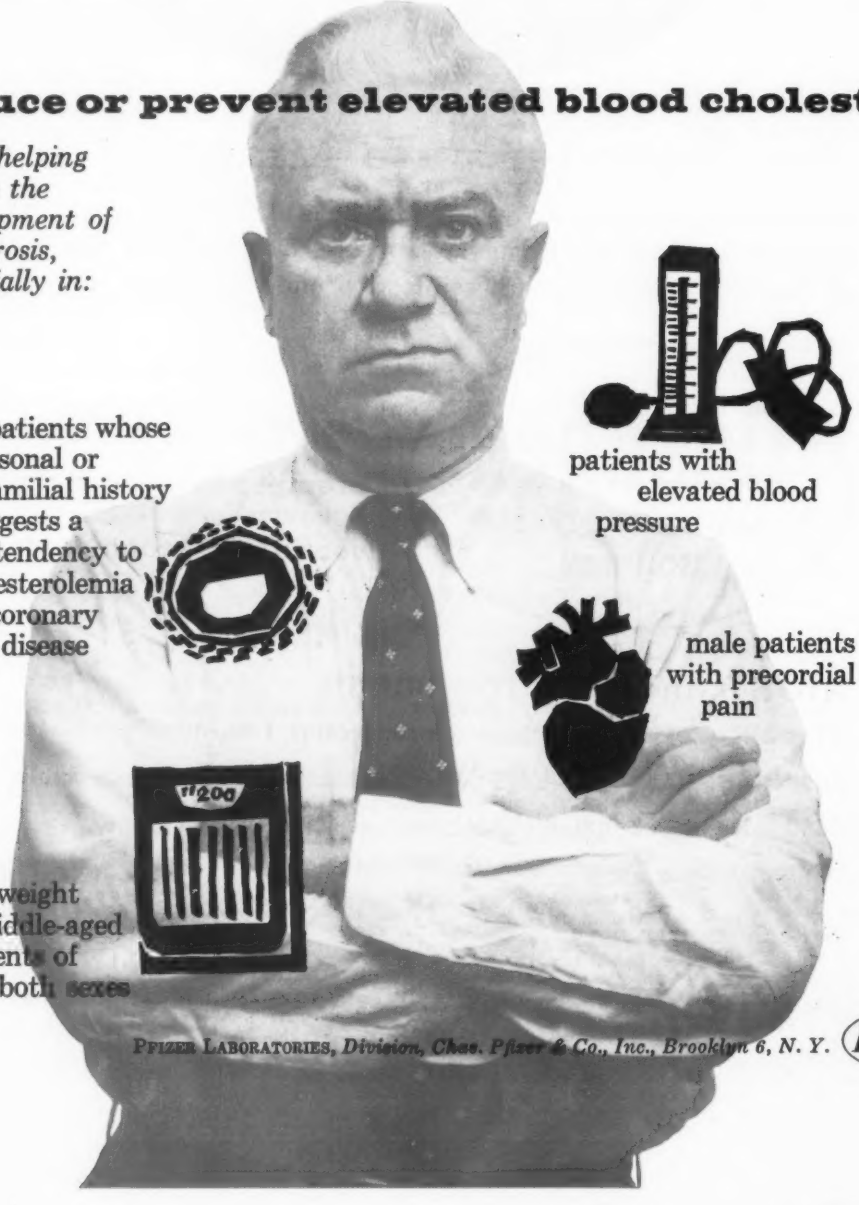
1. Van Gasse, J. J., and Miller, R. F.: Current Concepts on the Etiology and Management of Atherosclerosis, Scientific Exhibit, American Medical Association Meeting, New York, June 3-5, 1957.

*TRADEMARK

to reduce or prevent elevated blood cholesterol

thereby helping to minimize the development of atherosclerosis, especially in:



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*Martin, E. A.: Roberts' Nutrition Work with Children, Chicago, The University of Chicago Press, 1954, pp. 141-146.

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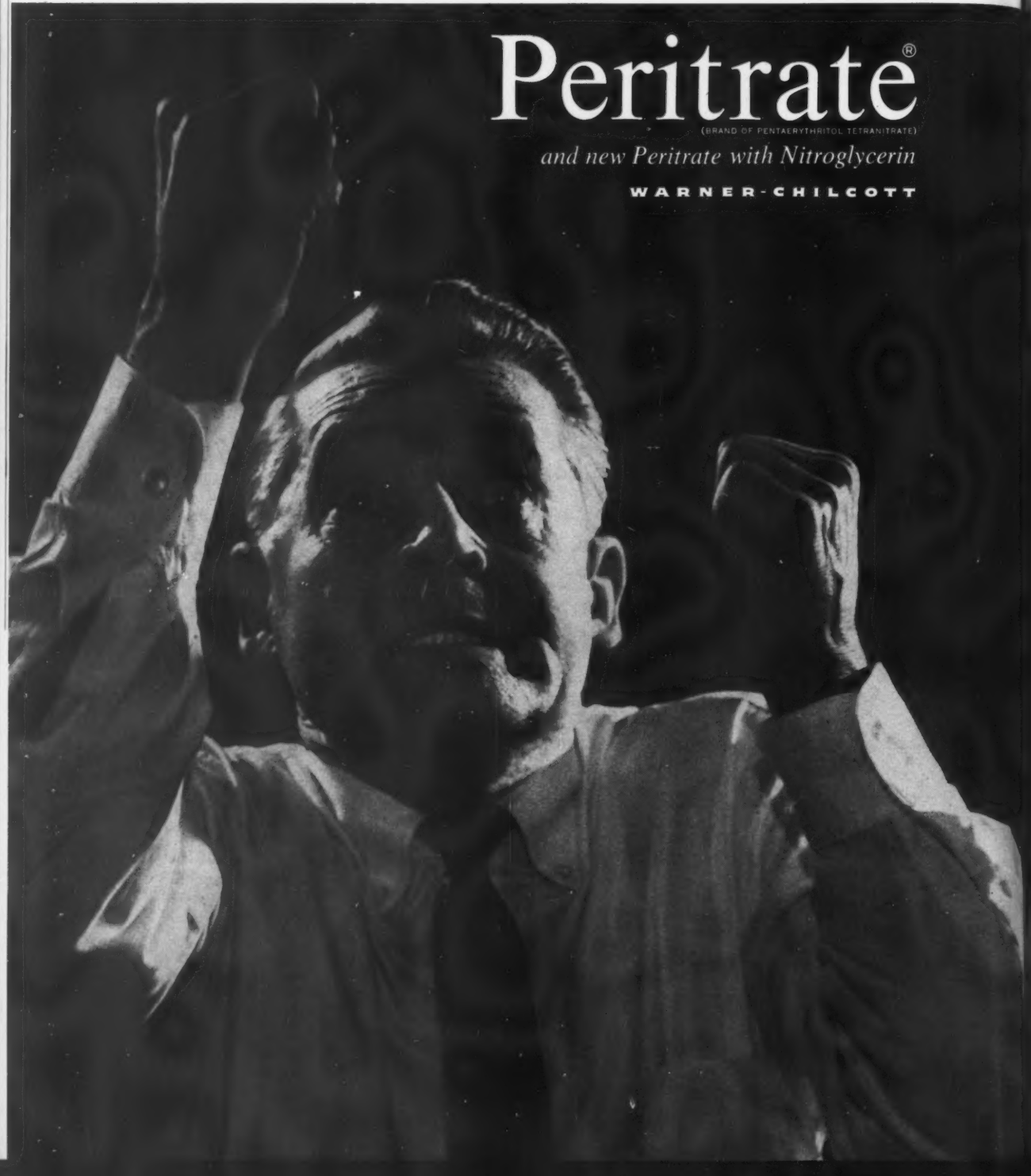

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1. Gale, E. T., and Thewlis, M. W.: Geriatrics 8:80, 1953. 2. Alvarez, W. C.: Geriatrics *10*:555, 1955. 3. Conference on Cerebral Vascular Disease, American Heart Association, Princeton, N. J., January, 1957. 4. Martin, G. J. (Ed.): Hesperidin and Ascorbic Acid, New York, S. Karger, 1955.

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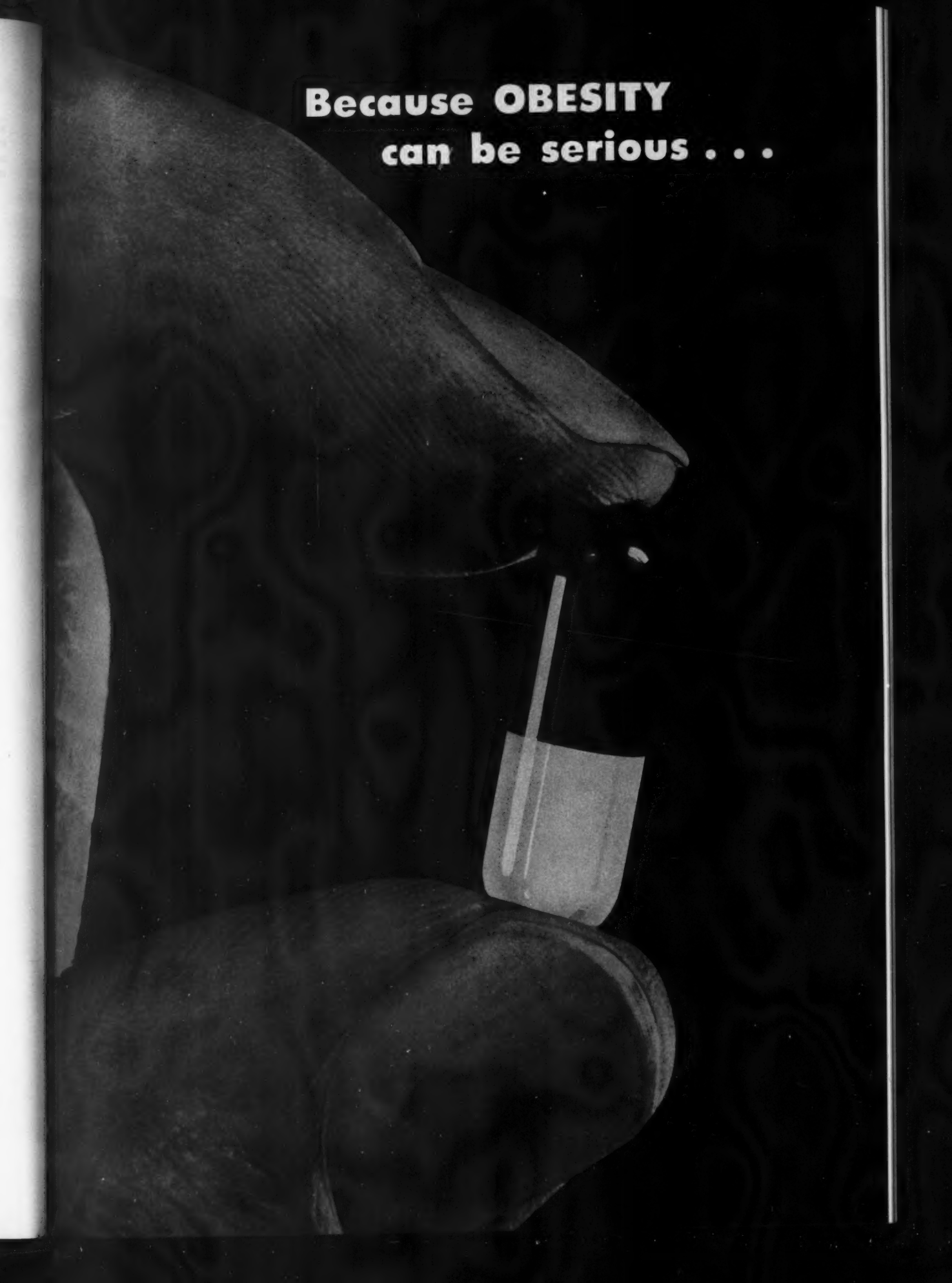
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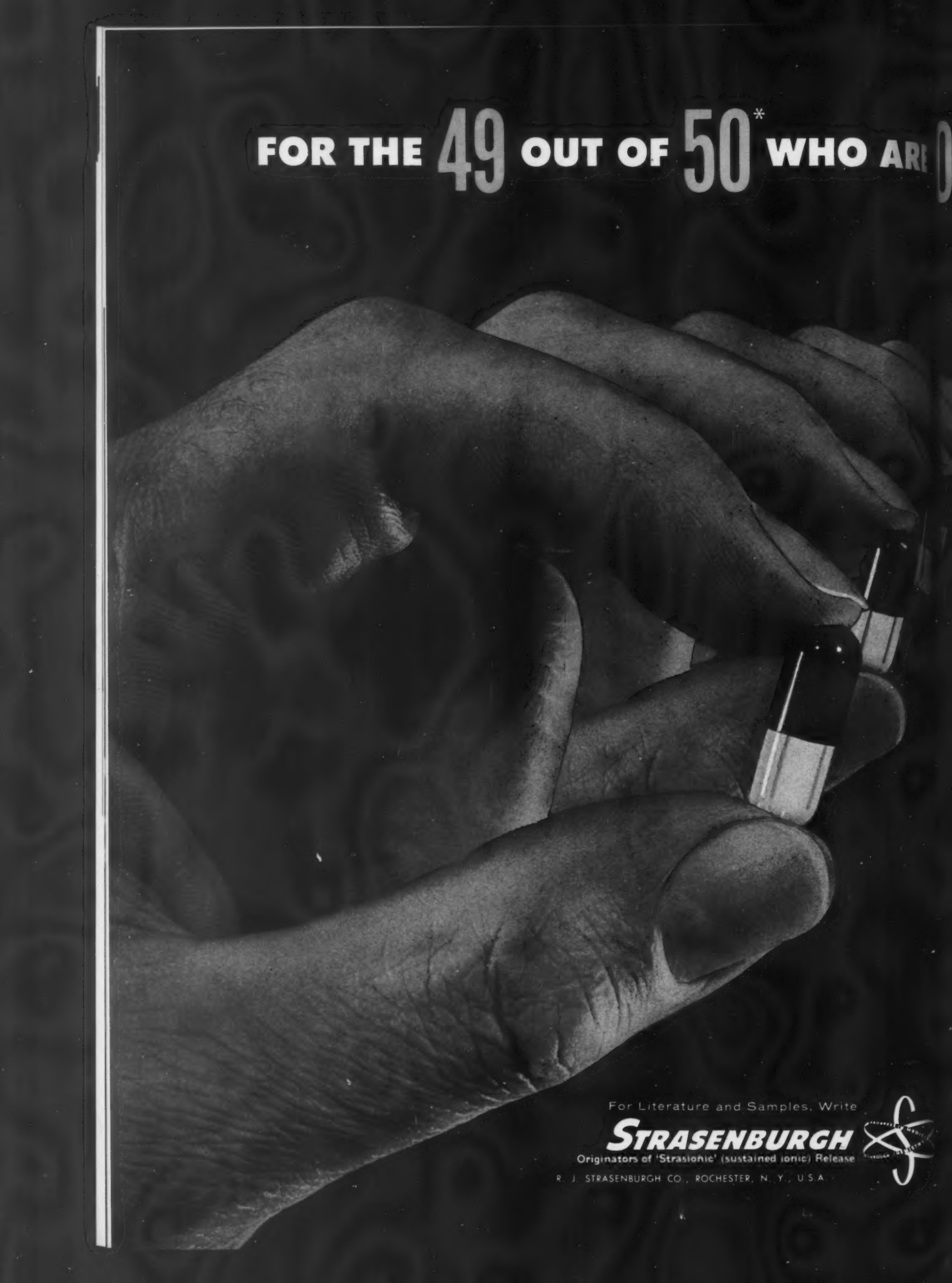
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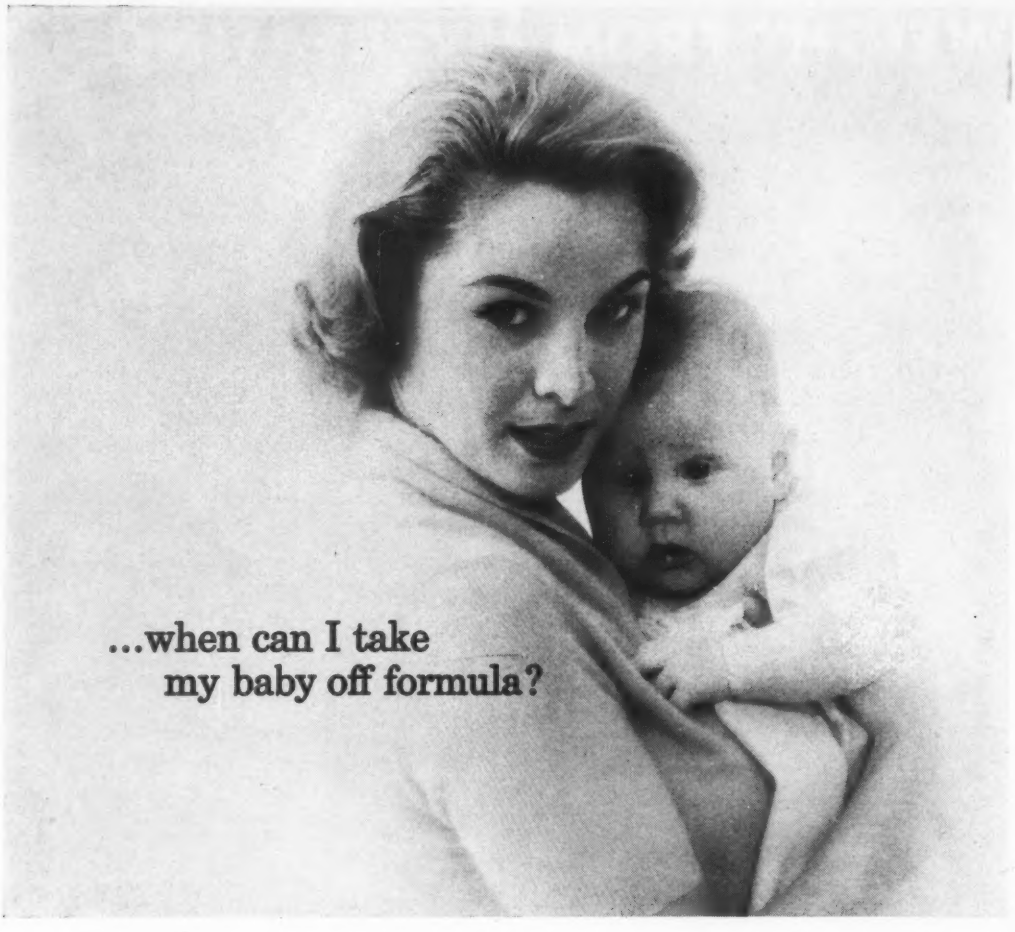

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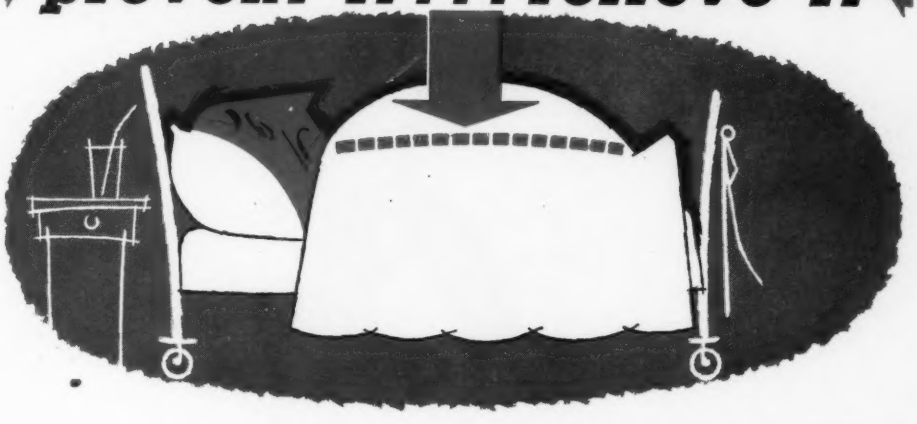

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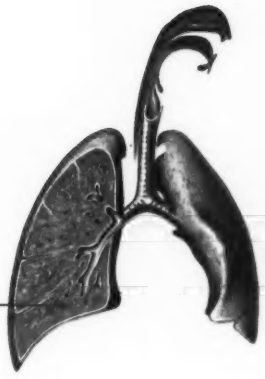

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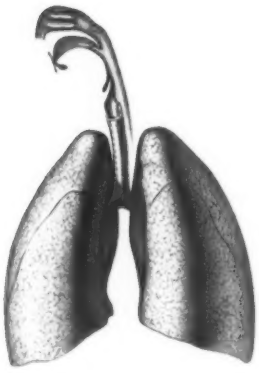

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An orally administered decongestant has much better distribution to the mucous membranes of the respiratory tract than nasal sprays, drops and inhalants. "This affords opportunity for shrinkage in areas that could not be approached by sprays, drops or actual topical applications."

—MORRISON, L. F.: ARCH. OTOLARYNG. 59:49-53 (JAN.) 1954.

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STOP respiratory congestion orally

relief in minutes...lasts for hours

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Triaminic does not cause secondary congestion, eliminates local overtreatment and consequent nasal pathology.

*Morrison, L. F.: Arch. Otolaryng. 59:48-53 (Jan.) 1954.

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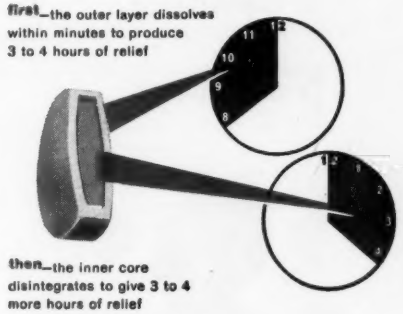
Dosage: 1 tablet in the morning, afternoon, and in the evening if needed.

Each double-dose "timed-release" tablet keeps nasal passages clear for 6 to 8 hours—provides "around-the-clock" freedom from congestion on just three tablets a day


first—the outer layer dissolves within minutes to produce 3 to 4 hours of relief
then—the inner core disintegrates to give 3 to 4 more hours of relief

Also available: Triaminic Syrup, for children and those adults who prefer a liquid medication.

Triaminic® "timed-release" tablets

STOP *running noses* *and open stuffed noses orally*

SMITH-DORSEY • a division of The Wander Company • Lincoln, Nebraska • Peterborough, Canada

respiratory congestion orally

plus control of cough spasm

- **decongestant**
- **expectorant**
- **anti-allergic**

Triaminicol is more than a cough syrup. First, because it contains Triaminic, it decongests nasal passages, and exerts its action on all mucous membranes of the respiratory tract—working at the *source* of cough. Then, Triaminicol provides Dormethan, non-narcotic antitussive that acts directly on the cough reflex.

Fully as effective as codeine, Dormethan is less likely to produce drowsiness or nausea. Its classic expectorant component, ammonium chloride, is well known for its ability to liquefy mucus and aid in the expulsion of exudates from the lungs and trachea.

Each 5 ml. teaspoonful provides:

TRIAMINIC® ..... 25 mg.
(Phenylpropanolamine hydrochloride 12.5 mg., Pyrilamine maleate 6.25 mg., Pheniramine maleate 6.25 mg.)
Dormethan* ..... 10 mg.
Ammonium chloride ..... 90 mg.
in a delicious, fruit-flavored, non-alcoholic vehicle.
*brand of dextromethorphan hydrobromide

Dosage: Adults—2 teaspoonfuls 3 or 4 times daily.
Children 6 to 12 years—1 teaspoonful 3 or 4 times daily.
Under 6 years—dosage in proportion.

NEW **Triaminicol** syrup

Non-narcotic antitussive

SMITH-DORSEY • a division of The Wander Company • Lincoln, Nebraska • Peterborough, Canada

coughing for 6 to 8 hours with one "timed-release" tablet

Tussaminic is non-narcotic—the patient simply swallows one timed-release "double-dose" tablet before breakfast to work cough-free all day. Another tablet before dinner lets him relax cough-free all evening. A final tablet at bedtime lets him sleep cough-free all night. Thus, cough relief is measured in hours, not minutes.

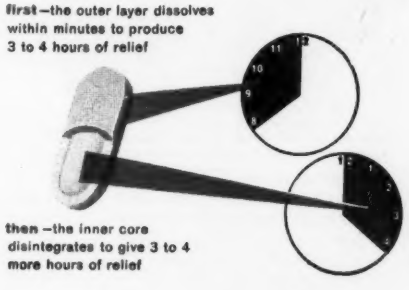
Tussaminic is not only valuable for the patient with a coughing cold, but also for the habitual morning hacker. And due to its Triaminic component, associated bronchial and nasal congestion frequently clears.

Each "double-dose" tablet contains:

TRIAMINIC® ..... 100 mg.
(Phenylpropanolamine hydrochloride 50 mg., Pheniramine maleate 25 mg., Pyrilamine maleate 25 mg.)
Dormethan* ..... 30 mg.
Terpin hydrate ..... 300 mg.
*brand of dextromethorphan hydrobromide

Dosage: 1 Tussaminic tablet before breakfast, dinner and at bedtime.

Tussaminic "timed-release" tablets provide prolonged cough relief. Each tablet contains two full doses of long-lasting antitussive, expectorant, anti-allergic and decongestant components.


first—the outer layer dissolves within minutes to produce 3 to 4 hours of relief
then—the inner core disintegrates to give 3 to 4 more hours of relief

NEW **Tussaminic** "timed-release" tablets

Non-narcotic antitussive decongestant

SMITH-DORSEY • a division of The Wander Company • Lincoln, Nebraska • Peterborough, Canada

respiratory congestion orally

plus control of pain and fever

Congestion and associated discomforts of the common cold can now be treated *orally* with a single preparation — Triaminicin. Containing effective amounts of Triaminic for rapid clearing of the bronchial and nasal passages, Triaminicin also provides aspirin, phenacetin and caffeine to control headaches and fever. Triaminicin Tablets are buffered.

In addition, Triaminicin contains vitamin C to help raise resistance[1,2,3] to respiratory conditions.

1. Macleod, G., and Sherman, H. C., in Handbook of Nutrition, ed. 2, New York, The Blakiston Company, 1951, p. 254. 2. Brody, H. D.: J. Am. Dietet. A. 29:588, 1953. 3. Franz, W. L., and Heyl, H. L.: J.A.M.A. 162: 1224, 1956.

Each buffered Triaminicin Tablet contains:

TRIAMINIC®	50 mg.
(Phenylpropanolamine hydrochloride 25 mg., Pyrilamine maleate 12.5 mg., Pheniramine maleate 12.5 mg.)	
Aspirin (3½ gr.)	225 mg.
Phenacetin (2½ gr.)	150 mg.
Caffeine (½ gr.)	30 mg.
Ascorbic acid	50 mg.
Aluminum hydroxide (dried gel)	180 mg.

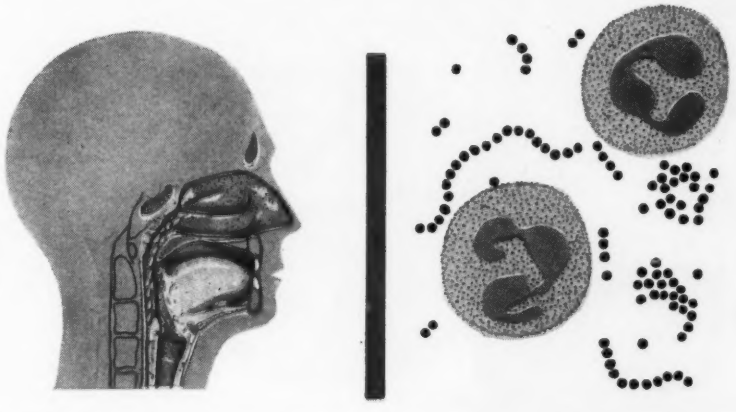
Dosage: 1 tablet every 3 or 4 hours.

NEW Triaminicin tablets

SMITH-DORSEY • a division of The Wander Company • Lincoln, Nebraska • Peterborough, Canada

STOP respiratory congestion orally

plus control of bacterial invaders



With one unique preparation, you can now provide dramatic relief from respiratory congestion, and at the same time protect the patient from secondary bacterial infection. Through the action of Triaminic, its oral decongestant component, nasal patency is often effected within minutes of the first dose; breathing is easy again.

When bacterial invasion threatens, Trisulfaminic offers the wide-spectrum protection of triple sulfas. It is particularly valuable for the "almost well" patient recovering from endemic or epidemic infleunza, and the patient prone to "lingering" or recurrent colds. And in purulent rhinitis, sinusitis and tonsillitis, Trisulfaminic offers a more realistic approach to the total treatment of the patient.

Each tablet or 5 ml. tsp. contains:

Triaminic . . . . . 25 mg.
(Phenylpropanolamine hydrochloride 12.5 mg., Pyrilamine maleate 6.25 mg., Pheniramine maleate 6.25 mg.)
Trisulfapyrimidines U.S.P.....0.5 Gm.

Dosage: Adults—2 to 4 tablets* initially, followed by 2 tablets every 4 to 6 hours until the patient has been afebrile for 3 days.

Children—8 to 12 years— 2 tablets initially followed by 1 tablet every 6 hours. Younger children in proportion.

**Each 5 ml. tsp. of Suspension equals 1 tablet.*

NEW Trisulfaminic tablets and suspension

TRIAMINIC® WITH TRIPLE SULFAS

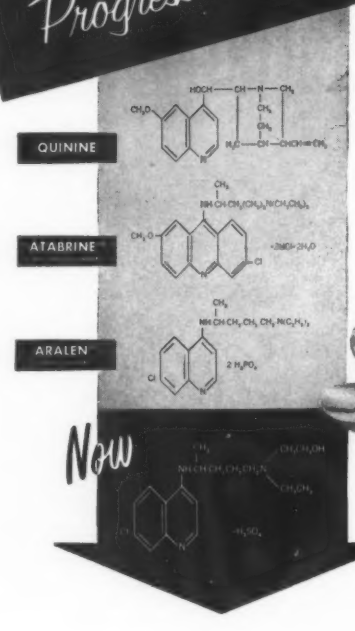
SMITH-DORSEY • a division of The Wander Company • Lincoln, Nebraska • Peterborough, Canada

Progress in SYNTHETIC CHEMISTRY
EQUALS
Progress in CHEMOTHERAPEUTICS

"It has a high degree of clinical safety. . . It is considered to be the preferred antimalarial drug for treatment of disorders of connective tissue, because of the low incidence of gastrointestinal distress as compared to that with chloroquine phosphate."[1]

"... Plaquenil is decidedly less toxic and better tolerated by the average patient, even in high dosage, than is chloroquine."[2]

"... the least toxic of its class ..."[3]



Remarkably effective in **Plaquenil®** SULFATE
RHEUMATOID ARTHRITIS

SIDE EFFECTS MARKEDLY REDUCED

DOSE: **Initial** — 400 to 600 mg. (2 or 3 tablets) Plaquenil sulfate daily.
Maintenance — 200 to 400 mg. (1 or 2 tablets) daily.

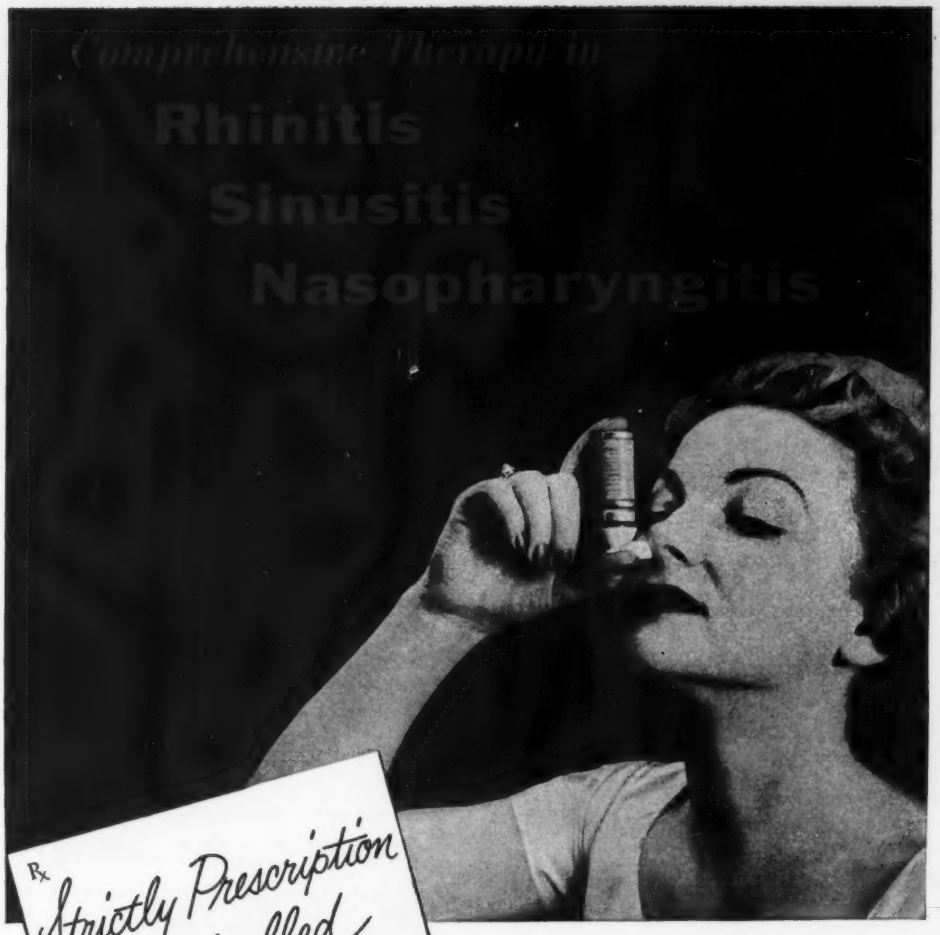
SUPPLIED: Tablets of 200 mg., bottles of 100.

Write for Booklet

Winthrop LABORATORIES

REFERENCES:
1. Scherbel, A.L., Schuchter, S.L., and Harrison, J.W.: *Cleveland Clin. Quart.* 24:98, Apr., 1957.
2. Editorial: *Bull A. Mil. Dermatologists*, The Shock Section 5:25, Nov., 1946.
3. Cornbleet, Theodore: Arch. Dermat. 73:572, June, 1956.

Atabrine (brand of quinacrine), Aralen (brand of chloroquine), and Plaquenil (brand of hydroxychloroquine), trademarks reg. U.S. Pat. Off.



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MEASURED-DOSE NASAL AEROSOL NEBULIZATION

Immediate, effective 4-pronged relief...vasoconstrictive, decongestive, anti-inflammatory, antibacterial. Accurately measured nebular cloud makes droppers and squeeze bottles obsolete.

Each cc. contains phenylephrine HCl 3.6 mg., phenylpropanolamine HCl 7.0 mg., neomycin sulfate 1.5 mg. (equivalent to 1.0 mg. neomycin base), and hydrocortisone 0.6 mg., suspended in an inert, nontoxic aerosol medium.

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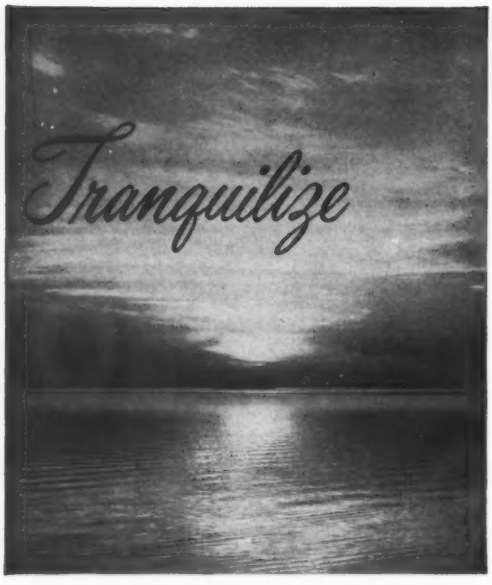

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ACETYLCARBROMAL TABLETS

- Proved safe and effective by 6 years' clinical use.
- Soothes the central nervous system. produces calmness without hypnosis.
- Non-toxic, non-cumulative, non-addicting, no known contraindications.
- Does not impair mental or physical function.
- Orally effective within 30 minutes for sustained action up to 6 hours.
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Indications: Tension, nervousness, anxiety and muscular spasm.

Supplied: White round tablets Acetylcarbromal 5 gr. in bottles of 100, 1000.

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***NEW: FELSOL TABLETS** *now available*

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FELSOL provides *safe* and *effective* relief in *asthma, hay fever,* and related bronchial affections.

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FELSOL also relieves *pain* and *fever* in *arthritis, headaches, rheumatic fever, colds,* and *flu.*

The fast action and long duration of FELSOL gives smooth and comforting relief. After a single therapeutic dose of antipyrine, Brodie and Axelrod report, "Plasma levels declined slowly, measurable amounts of the drug persisting 24 hrs." (J. Pharm. & Exper. Ther. 98:97, 1950)

Ingredients	*Each Powder*	*Each Tablet*
Antipyrine	870 mg.	435 mg.
Iodopyrine	30 mg.	15 mg.
Citrated Caffeine	100 mg.	50 mg.

NOTE: *Each powder equals two tablets.*

Try this unique and superior product by writing for free professional samples and literature.

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*At local pharmacies in boxes of 15 and 90 powders, or bottles of 30 and 180 tablets.

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PARAFLEX*

Chlorzoxazone†

specific for painful muscle spasm
arthritic · rheumatic · traumatic

a new skeletal muscle relaxant for long-lasting relief with practical dosage

PARAFLEX*

Chlorzoxazone†

PARAFLEX Chlorzoxazone is 5-chlorobenzoxazolinone, a completely new skeletal muscle relaxant. Acting on the spinal cord, PARAFLEX selectively depresses the multisynaptic reflex arcs which maintain painful muscle spasm. In the treatment of arthritic, rheumatic or traumatic disorders in which spasm is present, PARAFLEX provides the physician with an unmatched combination of specific, practical and clinically important advantages.

effective action Clinicians report: PARAFLEX was found to be a most effective muscle relaxing drug.[1] Improvement was noted in advanced osteoarthritis involving the spine as measured by decrease in muscle spasm and lessening of pain.[2] Symptoms were at least partially alleviated in all patients treated.[3] Therapy with PARAFLEX provided gratifying relief—no side effects were noted.[4]

long-lasting relief An investigator reports on 148 cases: In most patients, the beneficial effects of PARAFLEX persisted for approximately six hours.[1]

practical dosage Dosage of PARAFLEX is usually only one or two tablets, three or four times a day. In experimental studies, PARAFLEX was from one and one-half to three times as potent as other commonly used muscle relaxants.

side effects rare In a comprehensive study, not one of 148 patients treated with PARAFLEX had to discontinue therapy because of side effects.[1] To date no side reactions have been encountered.[2] Side effects are uncommon and seldom severe enough to require discontinuation of the drug.[5]

Clinical results with PARAFLEX

Investigator	Disorder	Number of Patients Treated	Number of Patients Benefited	Comment
Wiesel[2]	advanced osteoarthritis	12	10	less muscle spasm and pain
Holley[3]	wry neck, cervical spondylitis, and disc syndrome	10	10	improvement, ranging from some amelioration of symptoms to profound relief
Settel[4]	acute low back pain, acute traumatic myofascitis, or osteoarthritis	15	14	response excellent in nine, good in five
Passarelli[6]	degenerative and rheumatoid arthritis	9	9	improvement, with less stiffness and freer motion
Passarelli[6]	varied arthritic, rheumatic, and traumatic disorders	6	6	less stiffness, less pain
Totals:		52	49	

dosage PARAFLEX is administered orally in the form of 250 mg. scored tablets. Relief may frequently be obtained on a dosage of one tablet (250 mg.) three or four times a day. Initial dosage for *severe muscle spasm* should be two tablets (500 mg.) three or four times a day. If adequate response is not obtained with this dose, it may be increased to three tablets (750 mg.) three or four times a day. As improvement occurs, dosage can usually be reduced.

Brochure available on request.

supplied Tablets, scored, orange, bottles of 50. Each tablet contains PARAFLEX, 250 mg.

references 1) Smith, R. T., to be published. 2) Wiesel, L. L., Personal communication. 3) Holley, H. L., Personal communication. 4) Settel, E., Personal communication. 5) Peak, W. P., and Smith, R. T., to be published. 6) Passarelli, E. W., Personal communication.

*Trade-mark

†U.S. Patent Pending

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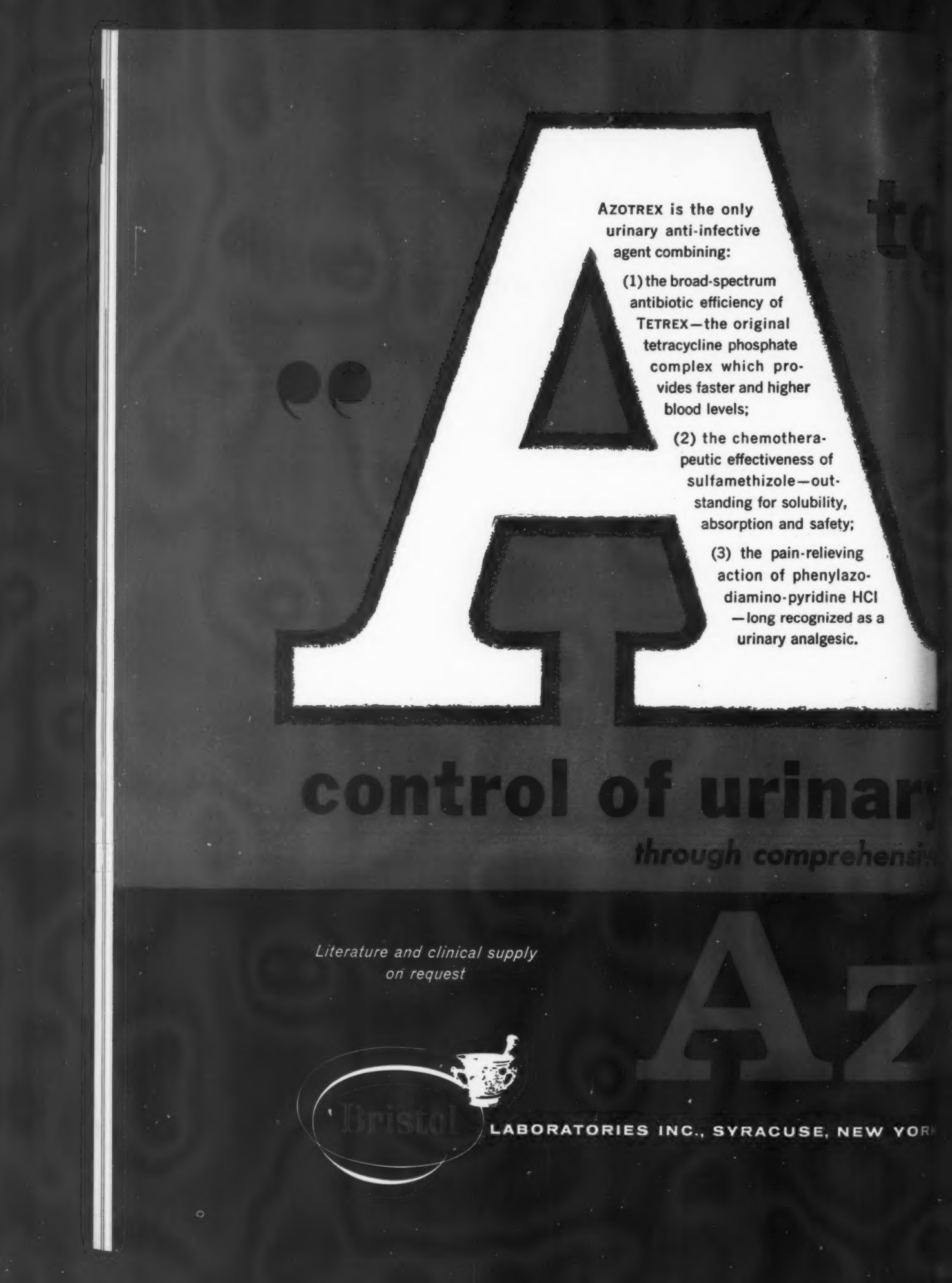
AZOTREX is the only urinary anti-infective agent combining:
(1) the broad-spectrum antibiotic efficiency of TETREX—the original tetracycline phosphate complex which provides faster and higher blood levels;
(2) the chemotherapeutic effectiveness of sulfamethizole—outstanding for solubility, absorption and safety;
(3) the pain-relieving action of phenylazo-diamino-pyridine HCl —long recognized as a urinary analgesic.
control of urinary
through comprehensive
Literature and clinical supply on request
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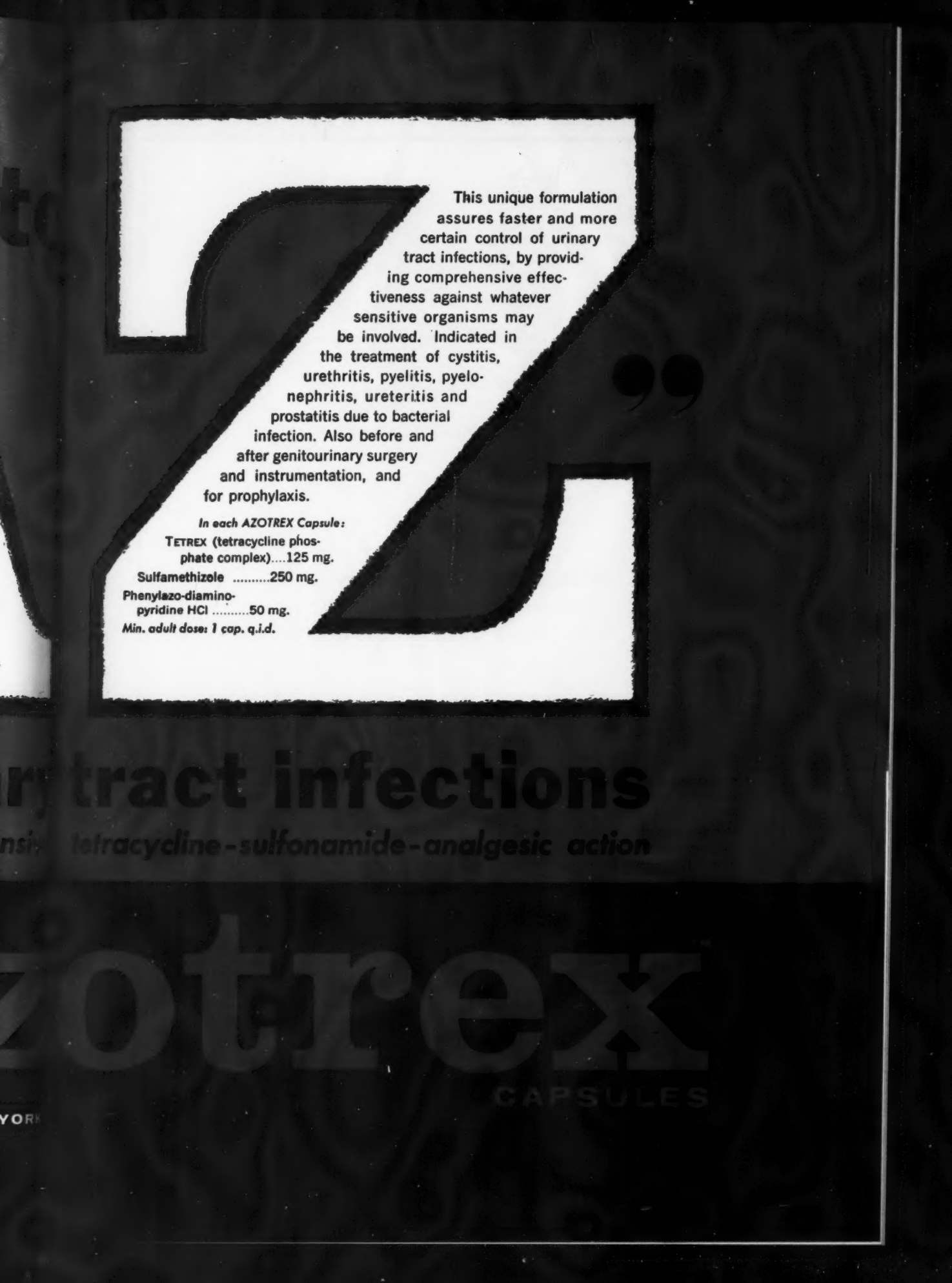
This unique formulation assures faster and more certain control of urinary tract infections, by providing comprehensive effectiveness against whatever sensitive organisms may be involved. Indicated in the treatment of cystitis, urethritis, pyelitis, pyelonephritis, ureteritis and prostatitis due to bacterial infection. Also before and after genitourinary surgery and instrumentation, and for prophylaxis.
In each AZOTREX Capsule:
TETREX (tetracycline phosphate complex)....125 mg.
Sulfamethizole .....250 mg.
Phenylazo-diaminopyridine HCl .....50 mg.
Min. adult dose: 1 cap. q.i.d.
tract infections
tetracycline-sulfonamide-analgesic action
zotrex
CAPSULES

"'You are old, Father William,' the young man said,
'And your hair has become very white;
And yet you incessantly stand on your head—
Do you think at your age, it is right?'"

ALICE'S ADVENTURES IN WONDERLAND* DRAWING: JOHN TENNIEL, COURTESY GROSSET & DUNLAP

VASTRAN is the easy way

to dilate constricted intracranial vessels and increase circulation in older patients.

VASTRAN helps relieve fatigue by increasing intracranial circulation and improving cerebral nutrition, brings a comfortable sense of warmth and well-being. VASTRAN relieves elderly patients' cold hands and feet through warming peripheral vasodilating action of nicotinic acid.

VASTRAN also contains essential B-complex coenzyme factors and ascorbic acid to enhance cellular metabolism.

VASTRAN *is versatile:* Indicated in osteoarthritis, bursitis, myositis, fasciitis, tendinitis, peripheral neuritis, low back disorders and common strains. VASTRAN is also beneficial in intermittent claudication, Raynaud's disease, Buerger's disease, thromboangiitis, chilblains and cold hands and feet.

Each VASTRAN® tablet contains: nicotinic acid, 50 mg.; ascorbic acid, 100 mg.; riboflavin, 5 mg.; thiamine mononitrate, 10 mg.; pyridoxine hydrochloride, 1 mg.; cobalamin (vitamin B_{12} activity), 2 mcg.; calcium pantothenate, 5 mg.

Add Vastran to the over-all treatment of your aging patients.

Dosage: VASTRAN 1 tablet q.i.d. before meals.

VASTRAN AMP – more than injectable VASTRAN: In acute or severe conditions, start therapy with injectable VASTRAN AMP solution. Rapid vasodilation is complemented by adenosine-5-monophosphoric acid, as an aid in restoration of normal muscle function through increasing energy stores at the biochemical level. VASTRAN AMP contains in each cc.: nicotinic acid (as sodium salt), 20 mg.; adenosine-5-monophosphoric acid (as sodium salt), 25 mg.; and vitamin B_{12}, 75 mcg.

Note: VASTRAN tablets, for peripheral circulation impairment, are not to be confused with VASTRAN FORTÉ capsules, for hypercholesteremia.

References and literature on request:

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BUTAZOLIDIN® alka capsules

Provides the potent anti-inflammatory, analgesic and antipyretic action of BUTAZOLIDIN plus an added antacid-antispasmodic effect for the benefit of patients with gastric sensitivity.

nonhormonal · anti-inflammatory · anti-arthritic

BUTAZOLIDIN being a potent therapeutic agent, physicians unfamiliar with its use are urged to send for detailed literature before instituting therapy.

BUTAZOLIDIN® Alka: Capsules containing Butazolidin (phenylbutazone GEIGY) 100 mg.; aluminum hydroxide 100 mg.; magnesium trisilicate 150 mg.; homatropine methylbromide 1.25 mg.

BUTAZOLIDIN® (phenylbutazone GEIGY): Red coated tablets of 100 mg.

not an amphetamine, but an oxazine

specifically for weight reduction

PRELUDIN®

(brand of phenmetrazine hydrochloride)

Chemically and pharmacologically different from amphetamine, PRELUDIN is a potent appetite suppressant having minimal C.N.S. stimulating activity.

reduces the problems of reducing—PRELUDIN produces satisfactory weight loss with little or no undesirable side actions such as insomnia or "jitteriness."[1-5] Hence, PRELUDIN can often be administered where other appetite suppressants are rejected.[2]

facilitates the treatment of complicated obesity—PRELUDIN may be used in cases of moderate hypertension, chronic cardiac disease or diabetes.[1-4]

(1) Barnes, R. H.: A Program of Therapeutic Supports in Obesity, Scientific Exhibit, 106th Ann. Meet., A.M.A., New York, N. Y., June 3-7, 1957. (2) Natenshon, A. L.: Am. Pract. & Digest Treat. **7**:1456, 1956. (3) Gelvin, E. P.; McGavack, T. H., and Kenigsberg, S.: Am. J. Digest. Dis. **1**:155, 1956. (4) Holt, J. O. S., Jr.: Dallas M. J. **42**:497, 1956. (5) Ressler, C.: J.A.M.A. **165**:135 (Sept. 14) 1957.

PRELUDIN® (brand of phenmetrazine hydrochloride). Scored, square, pink tablets of 25 mg. Under license from C. H. Boehringer Sohn, Ingelheim.

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ARDSLEY, N.Y.

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Nursing personnel welcome the ease and convenience of the American-Gray Diverter Valve. Cost-conscious administrators like its simple, low-cost installation, minimum maintenance and time saving features. The Amsco-Gray Diverter Valve eliminates awkward hoses where leaks are both dangerous and annoying. Acceptable under the most rigid plumbing codes, thousands of these improved American-Gray Diverter Valves are saving hours and dollars in hospitals and nursing homes throughout the world.

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PATHIBAMATE*

Meprobamate with PATHILON® Lederle

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Dosage: 1 tablet t.i.d. at mealtime. 2 tablets at bedtime. *Supplied:* Bottles of 100, 1,000.

*Trademark ® Registered Trademark for Tridihexathyl Iodide Lederle

Lederle

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Contains:
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Methyl Salicylate—for *analgesia*
Thymol and Menthol—for *penetrating warmth*

1 oz. tubes and 8 oz. jars. Samples on request.

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Simplified Oral Treatment *of* Menstrual Irregularities

Duosterone®

anhydrohydroxyprogesterone 10.00 mg.
primed by ethinyl estradiol 0.01 mg.
} per tablet

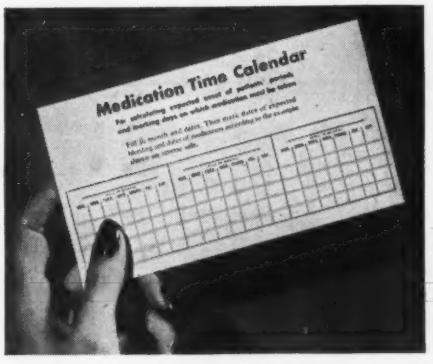
Dysfunctional uterine bleeding
Secondary amenorrhea

Given by mouth for five days, DUOSTERONE® tablets simulate the hormonal requirement of the secretory phase of the menstrual cycle. Normal menstrual function thus may be *safely* and conveniently restored with twin-hormone action of DUOSTERONE: oral progesterone primed with ethinyl estradiol. Normal menses may be set off by DUOSTERONE, much as touching the pendulum starts a wound clock. According to the concept of Holmstrom[1], DUOSTERONE therapy may initiate an endocrine chain-reaction resulting in spontaneous ovulatory cycles.

Other indications: Habitual or threatened abortion and functional sterility have also responded to DUOSTERONE therapy.

Supplied: DUOSTERONE tablets in bottles of 25 and 100, on prescription only.

1. Amer. J. Obst. & Gynec., 68:1321, 1954.



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MAKE TAKING VITAMINS—
A CHOCOLATE-LIKE TREAT

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A complete **ONE-A-DAY** "vita-mineral" supplement in delectable, chocolate-like, foil wrapped nuggets— to satisfy a natural desire and to fill a physiologic need —**PLEASANTLY**

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Vitamin A	5,000 U.S.P. Units	Biotin	30 mcg.
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Vitamin E	2 Int. Units	Boron	0.1 mg.
Vitamin B_1	2.5 mg.	Cobalt	0.1 mg.
Vitamin B_2	2.5 mg.	Fluorine	0.1 mg.
Vitamin B_6	1 mg.	Iodine	0.2 mg.
Vitamin B_{12} Activity	3 mcg.	Magnesium	3.0 mg.
Panthenol	5 mg.	Manganese	1.0 mg.
Nicotinamide	20 mg.	Molybdenum	1.0 mg.
Folic Acid	0.1 mg.	Potassium	2.5 mg.

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ONLY DELECTAVITES CAN BE CHEWED WITHOUT EVEN A TRACE OF VITAMIN FLAVOR!

HIS JOB: *To heal, to counsel, to protect your health*

The American Doctor—scientist and guardian of our nation's health. With skill, understanding and selflessness, he devotes his life to our physical and mental needs.

Mutual Benefit Life's job:

TRUE SECURITY

FOR YOU AND YOUR FAMILY

As a member of the medical or dental profession your job is not only to care for the needs of your patients today, but also to protect their future.

Similarly, Mutual Benefit Life does much more than answer your present problems. Mutual Benefit Life offers TRUE SECURITY to you and your family through a unique insurance plan designed to take advantage of your lifetime earning curve which differs so greatly from that of men in other professions.

This program can apply to your insurance needs in many ways. For instance, if you are a young man just starting your professional life, you may set up an economical, easily liquidated estate. Or, as a married man, you want solid protection for your wife and growing children—even to paying their college tuition. After the children are "on their own," you will want your insurance plan to provide for your retirement.

No matter what your age or income, Mutual Benefit Life now offers you TRUE SECURITY with one inclusive insurance plan designed *to give you and your family the fullest, finest, most economical protection in the insurance field.*

TRUE SECURITY is now offered with the most liberalized coverage and lowest cost in Mutual Benefit Life's 113-year history.

Ask your Mutual Benefit Life man today about TRUE SECURITY.

MUTUAL BENEFIT LIFE

The Insurance Company for TRUE SECURITY

THE MUTUAL BENEFIT LIFE INSURANCE COMPANY, NEWARK, NEW JERSEY

in iron deficiency anemia

the direct approach

...specific therapy

Fer-In-Sol®

iron in a drop for infants and children

"When iron is indicated give only iron. The therapeutic response will be infinitely better, the medication will be taken with greater facility, and the cost of treatment will be far less."*

In infants and children the most common anemia is that due to iron deficiency; peak incidence is seen in ages from 6 to 24 months.*

Specify Fer-In-Sol—well tolerated, efficiently utilized ferrous sulfate in an acidulous vehicle for better absorption. Its pleasant citrus flavor makes it readily acceptable to young children, and its dropper dosage form makes it easy to give.

You are cordially invited to ask your Mead Johnson Representative for the convenient Fer-In-Sol Dosage Card (Lit. No. 267) or write to us, Evansville 21, Indiana.

*Smith, N. J., and Rosello, S.: J. Clin. Nutrition *1*:275, (May-June) 1953.

Mead Johnson
Symbol of service in medicine

FES97

"From clinical observation we have found that more cases of **chronic prostatitis** respond to Furadantin than to any other anti-infection agent" [1]

in acute and chronic prostatitis and following prostatectomy

FURADANTIN®

brand of nitrofurantoin

cures or improves 4 out of 5 patients

82% of 236 cases of acute and chronic prostatitis cured or improved with FURADANTIN[2]

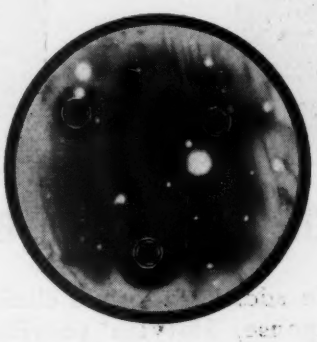
	No. patients	*Cured*	*Improved*	*Unimproved*
Acute Prostatitis	29	17	11	1
Chronic Prostatitis	207	49	117	41
Total	236	66	128	42

84% (142) of 170 cases of postprostatectomy infection responded favorably to FURADANTIN therapy.[2] FURADANTIN "has been found to be highly effective in the treatment of chronic urinary tract infection following prostatectomy."[3]

In prostatitis and following prostatectomy, FURADANTIN offers these advantages:

▪ rapid bactericidal action against a wide range of gram-positive and gram-negative bacteria and organisms resistant to other agents including Proteus and certain strains of Pseudomonas ▪ negligible development of bacterial resistance in 6 years of extensive use ▪ excellent tolerance—nontoxic to kidneys, liver and blood-forming organs. No cases of monilial superinfection, crystalluria or staphylococcic enteritis ever reported ▪ safe for long-term administration

Evidence of the antibacterial action of prostatic secretion from a patient receiving FURADANTIN:



Agar plate seeded with E. coli. Prostatic secretion of FURADANTIN-treated patient was dropped into steel cylinders, to prevent spreading of liquid. After incubation, zones of bacterial inhibition are clearly visible.

AVERAGE FURADANTIN DOSAGE IN PROSTATITIS:

Acute cases: 100 mg. q.i.d. until cured.

Chronic cases: 100 mg. q.i.d. for 10 to 14 days; depending on response, dosage may then be reduced to 100 or 200 mg. daily for 1 to 3 months.

SUPPLIED: Tablets, 50 and 100 mg., bottles of 25 and 100. Oral Suspension, 25 mg. per 5 cc. tsp., bottle of 60 cc.

REFERENCES: 1. Barnes, R. W., in discussion of Chinn, J., and Bischoff, A. J.: Tr. West. Sect. Am. Urol. Ass. 22:189, 1955. 2. Published reports and personal communications to the Medical Department, Eaton Laboratories. 3. Draper, J. W., et al.: J. Urol., Balt. 72:1211, 1954.

Additional references on FURADANTIN in prostatitis: Trafton, H. M., et al.: New England J. Med. 252:383, 1955. Norfleet, C. M., Jr., et al.: Tr. Southeast. Sect. Am. Urol. Ass., Boca Raton, Fla., 1952, p. 26. Schatten, W. E., and Persky, L.: Am. J. Surg. 86:720, 1953. Abrams, M., and Prophete, B.: Missouri M. 51:280, 1954.

NOW, for hospitalized patients, for severe urinary tract infections when peroral administration of FURADANTIN is not feasible and for systemic infections as septicemia (bacteremia) and peritonitis:

NEW, LIFESAVING FURADANTIN *Intravenous Solution*

NITROFURANS—*a new class of antimicrobials—neither antibiotics nor sulfonamides*

EATON LABORATORIES, NORWICH, NEW YORK

the bactericidal action makes the difference

In addition to rapid clinical response, 'Ilotycin' provides the important advantages only a bactericidal antibiotic can give you. 'Ilotycin' effectively eliminates strep. carrier states, directly kills pathogens to prevent the emergence of resistant strains, and offers maximum assurance against spread of infection.

Also consider 'Ilotycin' for safer therapy. Allergic reactions following systemic treatment are rare. Bacterial flora of the intestine is not significantly disturbed.

You can achieve more complete antibiotic therapy with 'Ilotycin.'

Usual adult dosage is 250 mg. every six hours.

*'Ilotycin' (Erythromycin, Lilly)

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Conventions and meetings

Announcements

American Osteopathic Association, Sixty-Second Annual Convention, Sheraton-Park and Shoreham Hotels, Washington, D.C., July 14-18. Program Chairman, Richard O. Brennan, 1115 W. Alabama St., Houston 6, Tex.

American College of Osteopathic Internists, annual meeting, Waldorf-Astoria Hotel, New York City, October 2-4. Program Chairman, H. Earle Beasley, 189 Bay State Rd., Boston 15, Mass. Secretary, Glennard E. Lahrson, 460 Staten Ave., Oakland 10, Calif.

American College of Osteopathic Surgeons, annual meeting, Statler Hotel, Boston, October 26-30. Executive Secretary, Mrs. E. F. Martin, Box 474, Coral Gables 34, Fla.

American Osteopathic Academy of Orthopedics, annual meeting, Statler Hotel, Boston, October 26-30. Secretary, J. Paul Leonard, 2673 W. Grand Blvd., Detroit 8, Mich.

American Osteopathic College of Anesthesiologists, annual meeting, Statler Hotel, Boston, October 26-30. Secretary, Crawford M. Esterline, Box 155, Kirksville, Mo.

American Osteopathic College of Proctology, annual meeting, Beach Club Hotel, Ft. Lauderdale, Fla., April 16-18. Program Chairman, Ralph W. Deger, 1121 Xenia Ave., Dayton 10, Ohio. Secretary, Eugene W. Egle, Lackland Clinic, 2335 Brown Rd., St. Louis 14.

American Osteopathic College of Radiology, annual meeting, Statler Hotel, Boston, October 26-30. Secretary, F. A. Turfler, Jr., South Bend Osteopathic Hospital, 2515 E. Jefferson Blvd., South Bend 15, Ind.

American Osteopathic Hospital Association, annual meeting, Statler Hotel, Boston, October 26-30. Executive Secretary, Mr. R. P. Chapman, 4000 Brady St., Davenport, Iowa.

Arizona, annual meeting, El Dorado Hotel, Tucson, May 4-6. Program Chairman, James B. Carson, 2813 S. Sixth Ave., Tucson. Executive Secretary, Mrs. Laura McRae, 4122 N. 19th Dr., Phoenix.

California, annual meeting, Senator Hotel, Sacramento, May 14-18. Program Chairman, Richard E. Eby, 1247 N. Park Ave., Pomona. Executive Secretary, Mr. Thomas C. Schumacher, 4775 Santa Monica Dr., Los Angeles 29.

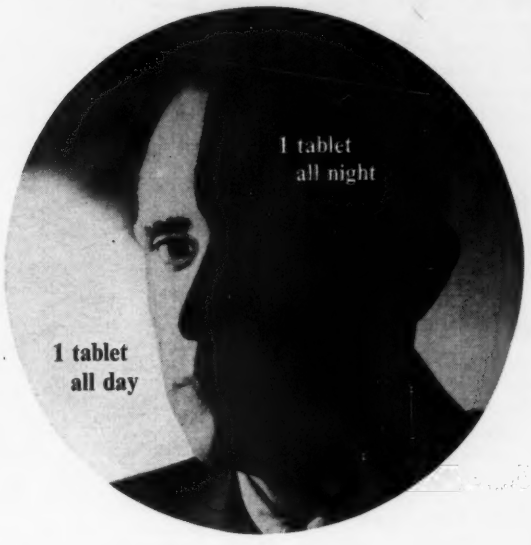
Colorado, annual meeting, Denver, May 3. Program Chairman, A. Hollis Wolf, 304 Carlton Bldg., Colorado Springs. Secretary, C. Robert Starks, 1459 Ogden St., Denver 18.

Eastern Osteopathic Association, annual meeting, Hotel Statler, New York City, March 29-30. Program Chairman, Chester D. Losee, 212 Prospect St., Westfield, N.J. Secretary, Frank B. Tompkins, 309 Meyerhoff Bldg., Baltimore 1.

Eastern States Osteopathic Society of Proctology, annual meeting, Hotel DuPont, Wilmington, Del., November 1-2. Program Chairman, Terrell E. Cobb, 1379 Narragansett Blvd., Cranston 5, R.I. Secretary, LeRoy W. Lovelidge, Jr., 201 E. Orange St., Lancaster, Pa.

Georgia, annual meeting, Dinkler-Plaza Hotel, Atlanta, May 12-14. Program Chairman, Charles B. Wright, Tucker Hospital, Tucker. Executive Secretary,

One tablet q. 12 h.: to prevent angina pectoris



Provides full 24-hour protection for 8 out of 10 angina patients: In rigorous clinical trials,[1] METAMINE SUSTAINED improved 80 (78%) of 103 patients with angina pectoris, including a group refractory to other medication.

Each METAMINE SUSTAINED tablet slowly releases 10 mg. of METAMINE, the unique, amino nitrate, to provide lasting, 12-hour protection from attacks of angina pectoris.

Simplified dosage—just 1 tablet on arising, and 1 before the evening meal.

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Supplied: METAMINE SUSTAINED, 10 mg., bottles of 50 sustained-release tablets. Also available: METAMINE, 2 mg., in bottles of 50 and 500, and METAMINE (2 mg.) with BUTABARBITAL (¼ gr.), bottles of 50 tablets.

[1]Fuller, H. L. and Kassel, L. E.: Antibiotic Medicine and Clinical Therapy, 3:322, October 1956.

1 tablet all day
1 tablet all night

Metamine®
triethanolamine trinitrate biphosphate, LEEMING, 10 mg.
Sustained

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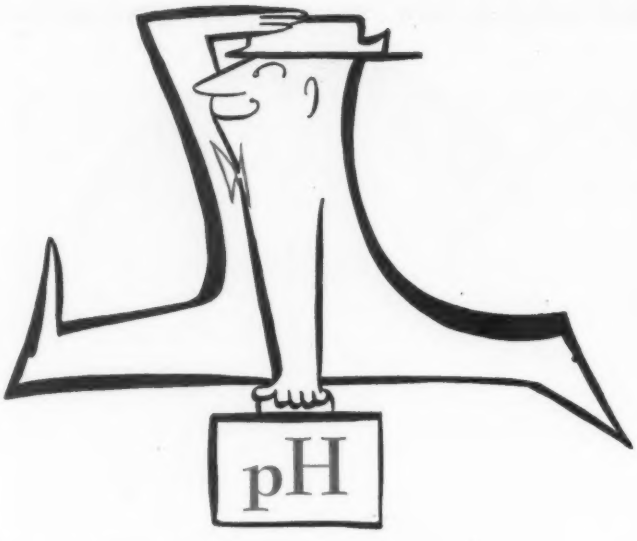

Bernie BepHan* says,
"Now my burning belly is O.K.;
BepHan helps me on the way."

Each tablet contains: Bellafoline® 0.5 mg., Aluminum Hydroxide — Glycine 450 mg., Magnesium Oxide 60 mg.
Dose: One BepHan Spacetab® chewed morning and evening.

*T. M. Applied for

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Mr. James C. Chappell, 3900 Bobolink Dr., Decatur.

Illinois, annual meeting, Palmer House, Chicago, April 24-26. Executive Secretary, Mr. Douglas O. Durkin, Room 521, 53 W. Jackson Blvd., Chicago 4.

Indiana, annual meeting, French Lick-Sheraton Hotel, French Lick, May 18-20. Program Chairman, Harold T. Sparks, 2317 Washington Ave., Evansville 14. Secretary, Arabelle Baker Wolf, 4840 N. Michigan Rd., Indianapolis 8.

Iowa, annual meeting, Hotel Savery, Des Moines, May 25-27. Program Chairman, George W. Sutton, 511 E. Washington, Mount Pleasant. Secretary, Mr. Herman W. Walter, 200 Walnut Bldg., Des Moines 9.

Louisiana, annual meeting, Lake Charles, October 23-25. Secretary, V. L. Wharton, Box 511, Lake Charles.

Maine, annual meeting, Samoset Hotel, Rockland, June 26-28. Program Chairman, Robert J. Meehan, 223 Main St., Rockland. Executive Secretary, Mr. George R. Petty, Monmouth.

Michigan, annual meeting, Civic Auditorium, Grand Rapids, October 6-8. Program Chairman, Emmett Binkert, Carson City Hospital, Carson City. Executive Secretary, Mr. Floyd E. Brooker, 81 Glendale, Highland Park 3.

Minnesota, annual meeting, Hotel Nicollet, Minneapolis, May 1-3. Program Chairman, Robert M. Plasch, 816 E. 38th St., Minneapolis 7. Secretary, E. R. Komarek, 301 Granite Exchange Bldg., St. Cloud.

New Mexico, annual meeting, Hilton Hotel, Albuquerque, April 13-16. Program Chairman, E. C. Bartlett, Jr., 118 Richmond Ave., N.E., Albuquerque. Secretary, Lory Baker, 400 N. Church St., Las Cruces.

Northwest Osteopathic Convention, Olympic Hotel, Seattle, June 12-14. Program Chairman, Wilbert B. Saunders, 4730 University Way, Seattle 5.

Ohio, annual meeting, Neil House, Columbus, May 4-7. Program Chairman, A. R. Fuller, 201 S. Park Ave., Fremont. Executive Secretary, Mr. William S. Konold, 53 W. Third Ave., Columbus 1.

Ontario, annual meeting, Prince Edward Hotel, Windsor, May 1-3. Program Chairman, Norman W. Routledge, 15 Ursuline Ave., Chatham. Secretary, A. V. DeJardine, 205 Yonge St., Toronto 1.

Oregon: See Northwest Osteopathic Convention.

South Dakota, annual meeting, Drake Hotel, Watertown, June 1-2. Program Chairman, Lawrence L. Massa, 981 E. Main St., Sturgis. Secretary, Earl W. Hewlett, 417 W. 27th St., Sioux Falls.

Tennessee, annual meeting, Maxwell House, Nashville, April 27-30. Program Chairman, William H. Graves, Central Bldg., Bristol. Secretary, J. M. Moore, Jr., 200 High St., Trenton.

Vermont, annual meeting, Green Mountain Inn, Stowe, September 23-25. Clerk-treasurer, Marian N. Rice, 8 Court St., Windsor.

Virginia, annual meeting, Williamsburg Lodge, Williamsburg, May 22-24. Program Chairman, Felix D. Swope, 126 N. Columbus St., Alexandria. Secretary, John A. Cifala, 2778 N. Washington Blvd., Arlington.

Washington: See Northwest Osteopathic Convention.

West Virginia, annual meeting, Daniel Boone Hotel, Charleston, May 18-20. Program Chairman, Earl K. Lyons, Professional Bldg., Kerens Ave., Elkins. Secretary, Guy E. Morris, 542 Empire Bank Bldg., Clarksburg.

Western States Osteopathic Society of Proctology, annual meeting, Texas Hotel, Ft. Worth, Texas, October 6-8. Program Chairman, Clarence R. Woolsey, 118 Third St., Corpus Christi, Texas. Secretary, Earle F. Waters, 925 E. South Temple St., Salt Lake City 2, Utah.

Wisconsin, annual meeting, Wisconsin Hotel, Milwaukee, April 28-30. Program Chairman, Donald R. Bartingale, 403 S. Farwell St., Eau Claire. Secretary, Edwin J. Elton, 1518 N. 70th St., Wauwatosa 13.

State and national boards

ARIZONA

Those interested in professional examinations should contact Russell Peterson, D.O., secretary, Osteopathic Board of Registration and Examination in Medicine and Surgery, 2747 East McDowell Rd., Phoenix.

Basic science examinations June 17 at the University of Arizona, Tucson. Applications must be filed 2 weeks prior to examinations. Address Mr. Herman E. Bateman, secretary, Basic Science Board, University of Arizona, Tucson.

COLORADO

Professional examinations in June at Denver. Address Mrs. Beulah H. Hudgens, executive secretary, Board of Medical Examiners, 715 Republic Bldg., Denver 2.

Basic science examinations May 7-8 at second floor lecture room, Y.M.C.A. Building, E. 16th Ave. and Lincoln St., Denver. Applications must be filed by April 23. Address Esther B. Starks, D.O., secretary, Basic Science Board, 1459 Ogden St., Denver 18.

CONNECTICUT

Basic science examinations June 14. Address Miss M. G. Reynolds, executive assistant, Board of Healing Arts, 110 Whitney Ave., New Haven 10.

DISTRICT OF COLUMBIA

Professional examinations May 12-13 at 1740 Massachusetts Ave., N.W., Washington 6, D.C. Applications must be filed by April 1. Address Daniel Leo Finucane, M.D., secretary, Commission on Licensure, 1740 Massachusetts Ave., N.W., Washington 6, D.C.

Basic science examinations April 21-22 at 1740 Massachusetts Ave., N.W., Washington 6, D.C. Applications must be filed by April 1. Address Dr. Finucane.

FLORIDA

Examinations in June. Address Thomas F. Sheffer, D.O., secretary, Board of Osteopathic Medical Examiners, Las Olas Hospital, 1516 E. Las Olas Blvd., Ft. Lauderdale.

HAWAII

Examination dates by Territorial Law are usually the first Wednesday, Thursday, and Friday of January, April, July, and October. One of these dates is set for examination after approval of the candidate's application by the Board. Address Frank O. Gladding, D.O., secretary, Board of Osteopathic Examiners, 504 Kauikeolani Bldg., Honolulu 13.

IDAHO

Examinations June 12 at Boise. Address Margaret Gilbert, Director, Occupational License Bureau, Department of Law Enforcement, State House, Boise.

ILLINOIS

Examinations in April in Chicago. Address Mr. Frederic B. Selcke, Superintendent of Registration, Department of Registration and Education, State House, Springfield.

IOWA

Basic science examinations April 8 at the Capitol Building, Des Moines. Address Elmer W. Hertel, Ph.D., secretary, Board of Basic Science Examiners, Wartburg College, Waverly.

KANSAS

Basic science examinations June 3-4 at Wahl Hall auditorium, University of Kansas Medical Center, Kansas City. Applications must be filed 30 days prior to examinations. Address Mr. Robert E. Stowell, secretary, Board of Basic Science Examiners, Kansas City 12.

High-concentration topical salicylate-menthol therapy (BEN-GAY) offers safe, penetrating relief of painful joints and muscles resulting from overexertion.

New, objective evidence:

A double-blind study[1] has reaffirmed the exceptional efficacy and safety of conservative, local treatment of chronic rheumatic disorders with BEN-GAY® (BAUME BENGUÉ), a high-concentration salicylate-menthol compound.

The local and systemic effects of BEN-GAY were evaluated by entirely objective methods in 211 subjects of both sexes suffering from various types of chronic arthritis, bursitis, neuralgia, myalgia and lumbago. Changes in range of joint motion were determined by goniometer and by flexion. Topical application of BEN-GAY measurably improved articular function in 94% when physical therapy was also used, and in 61% without adjunctive treatment. Efficient absorption of salicylate through the skin was indicated by an average urinary excretion of 15 mg. in 24 hours. No ill effects were reported or observed.

Benefits of Topical Salicylate

in chronic rheumatic disease

Menthol-induced hyperemia plus high local concentration of salicylate has been recently rediscovered as one of the safest and most promptly effective remedies for rheumatoid discomfort due to exposure.

This controlled study offers new evidence of the efficacy and safety of local treatment of chronic rheumatic disease with BEN-GAY, one of the safest and most reliable formulae at the physician's disposal. BEN-GAY is available in two strengths, *Regular and Children's*. THOS. LEEMING & CO., INC., 155 East 44th St., New York 17, N.Y.

[1]Brusch, C.A., et al.: Md. State Med. J.; 5:36, 1956.

More efficient salicylate penetration of treated area and quicker relief of pain is now made possible by water-washable, new GREASELESS-STAINLESS BEN-GAY.

MYALGIA

a better drug

The action of aspirin is markedly improved by intermixture with the antacid MAALOX.® This combination is available on physicians' prescriptions as

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ARTHRITIS

COLD

Each tablet contains:
ACETYLSALICYLIC ACID..... 0.30 Gm.
MAALOX..... 0.15 Gm.
(Magnesium aluminum hydroxide gel)

Note these advantages:
1. Within one hour, more than double the amount of salicylate appears in the blood stream.
2. Pain relief is felt twice as fast.
3. Gastric disturbance seldom occurs.
4. Pain relief lasts appreciably longer.

Prescribe ASCRIPTIN-Rorer for the pains and discomfort of arthritis, rheumatism, colds, grippe, headache, Asian Influenza, muscular aches and pains, etc. Your patients will be grateful.

Offered in bottles of 100 and 500 tablets.
Available at prescription pharmacies.
Liberal samples promptly on request.

Capsules ASCRIPTIN with Codeine Phosphate 15 mg. also offered.

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MAINE

Examinations June 10-11 at Augusta. Address George F. Noel, D.O., secretary, Board of Osteopathic Examination and Registration, 20 Monument Square, Dover-Foxcroft.

MARYLAND

Examinations in June at Baltimore. Address Christopher L. Ginn, D.O., secretary, Board of Osteopathic Examiners, 19 W. Mulberry St., Baltimore 1.

MICHIGAN

Basic science examinations in May at Detroit and Ann Arbor. Address Mrs. Anne Baker, secretary, Board of Examiners in the Basic Sciences, 116 Mason Bldg., Lansing.

MINNESOTA

Basic science examinations April 1-2 at University of Minnesota, Minneapolis. Address Raymond N. Bieter, M.D., secretary-treasurer, Board of Examiners in the Basic Sciences, 105 Millard Hall, University of Minnesota, Minneapolis 14.

MISSISSIPPI

Examinations in June. Address R. N. Whitfield, M.D., assistant secretary, State Board of Health, Jackson.

NEBRASKA

Basic science examinations May 6-7. Address Mr. Husted K. Watson, Director, Bureau of Examining Boards, Department of Health, State Capitol Bldg., Lincoln 9.

NEVADA

Basic science examinations April 8. Address Donald G. Cooney, Ph.D., secretary, Board of Examiners in the Basic Sciences, Box 9005, University Station, Reno.

NEW MEXICO

Basic science examinations April 20. Address Mrs. Marguerite Cantrell, secretary, Board of Examiners in the Basic Sciences, P.O. Box 1522, Santa Fe.

OHIO

Examinations in June at Columbus. Address H. M. Platter, M.D., secretary, State Medical Board, 21 W. Broad St., Columbus 15.

RHODE ISLAND

Professional examinations April 3-4 at Providence. Address Mr. Thomas B. Casey, Administrator of Professional Regulation, 366 State Office Bldg., Providence.

Basic science examinations in May at the State Office, Providence. Applications must be filed 21 days prior to examinations. Address Mr. Casey.

SOUTH DAKOTA

Basic science examinations in June at University of South Dakota, Vermillion. Address Gregg M. Evans, Ph.D., secretary, Basic Science Board, 310 E. 15th St., Yankton.

TENNESSEE

Basic science examinations given every 3 months. Address O. W. Hyman, M.D., secretary, Board of Basic Science Examiners, 874 Union Ave., Memphis 3.

TEXAS

Professional examinations June 23-25 at the Texas Hotel, Fort Worth. Applications must be filed 10 days prior to examinations. Applications for licenses by reciprocity must be filed 30 days prior. Address M. H. Crabb, M.D., secretary, Board of Medical Examiners, 1714 Medical Arts Bldg., Fort Worth 2.

Basic science examinations April 18-19 at Austin, Galveston, and Houston. Address Mrs. Betty Ratcliff, chief clerk, Board of Examiners in the Basic Sciences, 303 E. Seventh St., Austin.

WISCONSIN

Basic science examinations March 29 at the University of Wisconsin Chemistry Building, Room 100, Madison. Applications must be filed by March 21. Address Mr. W. H. Barber, secretary, Board of Examiners in the Basic Sciences, Ripon College, Ripon.

Reregistration of osteopathic licenses

April 1—Montana, $2 for those in active practice, $1 for those inactive. Address Asa Willard, D.O., secretary, Board of Osteopathic Examiners, Wilma Bldg., Missoula.

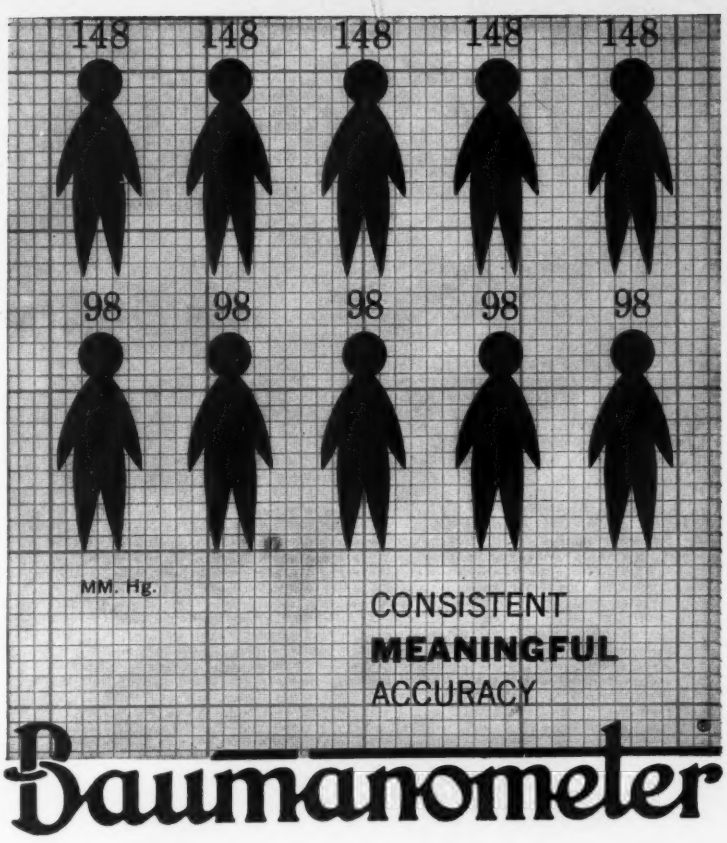
April 1—Wyoming, $2.50. Address Franklin D. Yoder, M.D., secretary, Board of Medical Examiners, New State Office Bldg., Cheyenne.

May 1—Iowa, $1. Address Mr. Herman W. Walter, assistant secretary, Board of Osteopathic Examiners, 200 Walnut Bldg., Des Moines 9.

May 1—Washington, $2. Address Mr. Edward C. Dohm, secretary, Professional Division, Department of Licenses, Olympia.

During June—Hawaii, $5 residents, $2 for nonresidents. Address Frank O. Gladding, D.O., secretary, Board of Osteopathic Examiners, 504 Kauikeolani Bldg., Honolulu 13.

Before June 30—Delaware, $20. Address Joseph S. McDaniel, M.D., secretary, Board of Medical Examiners, 229 S. State St., Dover.



The ever-increasing interest in intra-arterial pressure emphasizes today's need for a meaningful degree of accuracy in its measurement.

The use of a true mercury-gravity instrument assures you of consistent, dependable bloodpressure readings.

Examination by National Board

The National Board of Examiners for Osteopathic Physicians and Surgeons conducts Parts I and II of its examination on the first Thursday and Friday of each May and December at the six approved colleges. Application blanks may be obtained from the secretary or the dean of the college, and the completed application blank, together with a passport photograph and check for the parts to be taken must be in the secretary's office by the November 1 or April 1 preceding the examination.

Examinations in Part I consist of anatomy, including histology and embryology; physiology; physiological chemistry; general pathology; and bacteriology, including parasitology and immunology.

Part II consists of examinations in surgery, including applied anatomy, surgical pathology, and surgical specialties; neurology and psychiatry; public health, including hygiene, medical jurisprudence; osteopathic principles, therapeutics, including pharmacology and materia medica.

Part III is an oral and practical examination given under the supervision of a chief examiner who is a member of the Board and by a panel of associate examiners. Subjects covered in Part III are: anatomy; physiology; pathology; osteopathic principles; therapeutics, and pharmacology; surgery, ophthalmology and otorhinolaryngology; obstetrics and gynecology; physical and clinical diagnosis; public health and communicable diseases.

These are oral examinations which the candidate may take after having satisfactorily completed the first 6 months of a 1 year internship in a hospital approved by the American Osteopathic Association for intern training. Part III is given annually at the Philadelphia, Kirksville, and Los Angeles colleges.

Eligibility requirements are as follows: Part I, satisfactory completion of the first 2 years in an approved school of osteopathy; Part II, satisfactory completion of Part I and of the first two quarters or trimesters of the senior year in an approved osteopathic college; Part III, satisfactory completion of Part II and at least 6 months of a 1-year internship approved by the American Osteopathic Association. The internship requirement does not apply to candidates who took Part I prior to July, 1950.

Applications must be filed with the secretary of the Board not less than 30 days prior to the examination dates. Address Paul van B. Allen, D.O., secretary, 1512 N. Delaware Street, Indianapolis 2.

don't forget...
—to correct abnormal bowel function (either constipation or non-specific diarrhea)
—eliminate the high roughage foods containing irritating bulk (lignin and cellulose)
—and replace them with
KONSYL
(the bowel normalizer of choice)

Konsyl supplies a non-irritating bulk consisting entirely of hemicelluloses derived from blond psyllium. The smooth bulk of Konsyl disperses with the intestinal contents to create a soft-formed, easily passed stool. Konsyl assures the resumption of a normal peristaltic pattern and contains no sugar or other diluents.

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Originators of Fine Hydrophilic Colloids
WASHINGTON 9, D.C.

Record population growth in United States and Canada*

Both the United States and Canada scored record population gains in 1957. In the United States the increase exceeded 3,000,000 for the second year in a row, raising the total population, including the Armed Forces overseas, to 172,830,000 at the end of the year. In the 7¾ years since the 1950 Census 21.7 million people have been added to the population, an increase of 1.7 percent annually. Canada has been experiencing a much higher rate of growth, the population having increased by 2.9 percent a year since the June 1951 Census. At the close of 1957, Canada's population reached 16,900,000, an increment of about 556,000 during the year and of almost 2,900,000 since June 1951.

The rapid growth of population in the United States during recent years reflects largely the continuing baby boom. Births have established new high records for seven successive years. There were somewhat over 4,300,000 babies born in 1957, compared with about 4,220,000 the year before and 4,104,000 in 1955. The births in 1957 correspond to a rate of 25.3 per 1,000 population in the United States.

The babies born in 1957 had a good start in life. Infant mortality in the United States remained close to the all-time low level established the year before. There were about 26.3 infant deaths for every 1,000 live births, compared with 26.1 in 1956. Even with the small setback in the year just ended, the rate is about 20 percent lower than it was a decade ago and more than 50 percent below that of two decades ago.

The general mortality in the United States increased moderately during 1957, for the third successive year. The death rate for the total population was 9.6 per 1,000, compared with 9.4 in 1956 and with the record low of 9.2 in 1954. Deaths rose by 65,000 in 1957 to a new high of about 1,630,000. Part of the upswing in mortality during recent years is accounted for by increases in the proportion of older persons in the population. However, of equal importance in 1957 was the widespread outbreak of Asian influenza. In sharp contrast to the influenza pandemic of 1918-19, the current outbreak was relatively mild and fatalities were limited largely to persons past age 55. The influenza epidemic also had the effect of raising the mortality from diseases of the heart and arteries.

The natural increase in population—the excess of births over deaths—amounted to about 2,680,000 in 1957. This was somewhat above the previous maximum recorded the year before. The United States also gained about 330,000 persons through migration, or several thousand less than in 1956.

Every geographic division of the United States shared in the growth of population during 1957, but not in equal measure. The Pacific States continued to experience the largest rate of increase, namely 3.0 percent. This was two thirds above the national rate, and not much below the Far West's annual rate of increase for 1950-56. Since April 1950 California alone has added 3.6 million inhabitants.

The Mountain States have also been growing rapidly. In fact, Nevada and Arizona outrank all other States in the rate of population increase. Four States outside the West have also been growing at a rapid pace. Since 1950 the annual population gain has exceeded 5 percent in Florida and has averaged about 4½ percent in Delaware; in Maryland and Michigan it has been close to 3 percent annually.

Three States had fewer residents at the end of 1957 than in April 1950. The population has declined by 150,000 in Arkansas and by about 30,000 in West Virginia; Vermont has had a slight decrease.

The unprecedented increase during 1957 in the Canadian population resulted for the most part from a record excess of births over deaths. Canadian births rose by 24,000 to a new high of about 475,000

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in 1957; the rate was 28.5 per 1,000 population. The number of deaths totaled about 137,000. The death rate was 8.2 per 1,000 population, the same as in the two preceding years and only a shade above the all-time low of 8.1 registered in 1954. Canada also had an unusually large gain through migration in 1957—more than 200,000. This was double the number in 1956, and accounted for two fifths of the total population growth in the year.

Ontario and Quebec, the two largest Provinces in Canada, continued to grow rapidly in 1957. In fact, the population of Ontario increased by more than 4 percent, reaching 5¾ million at the end of the year. The rate of growth was even greater on the Pacific Coast, the population of British Columbia increasing by 6.4 percent. At the other extreme, there was little or no population change during 1957 in Prince Edward Island, Saskatchewan, the Yukon and Northwest Territories.

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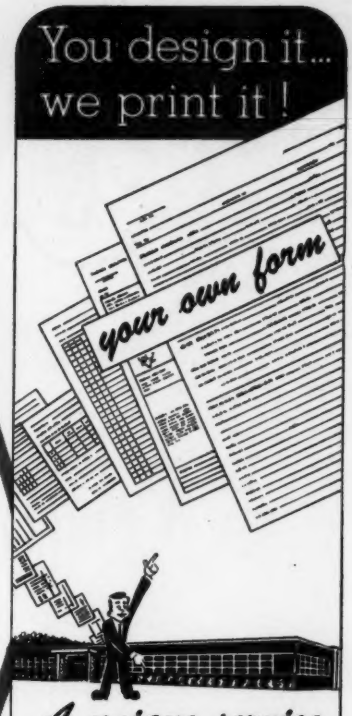

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Changing emphases in school health programs*

Arthur J. Lesser, M.D.
Director, Division of Health Services, Children's Bureau

The partnership of education and medicine that is essential for a school health program has been expressed in many ways but hardly more simply and directly than in a report of the Joint Committee on Health Problems in Education of the National Education Association and the American Medical Association.[1] The report lists these functions of a school health program:

1. To appraise the health status of pupils and school personnel.
2. To counsel pupils, parents, and others concerning appraisal findings.
3. To encourage the correction of remediable defects.
4. To assist in the identification and education of handicapped children.
5. To help prevent and control disease.
6. To provide emergency service for injury or sudden sickness.

Each of these components is broad and may have varying interpretations as well as applicability. Their applicability is affected by the kinds of health problems that are predominant today. These are different from those of a generation ago and vary among our communities and even from neighborhood to neighborhood in a city. How to carry out these program functions and what meaning they have for school health personnel will differ widely. Basically they have extensive usefulness.

*Reprinted from *Children*, January-February 1958.

THE NEED FOR CHANGE

However, differences in communities and in health problems are not the only factors which determine the content of a community's school health program. Often these programs continue practices which, though appropriate several decades ago, hardly are effective today since they fail to meet the major challenges of the present generation.

When school medical services started in this country (the first is reported to have begun in Boston in 1894) the control of the spread of contagious and nuisance diseases was the principal objective. This led to medical inspections of children in school. Subsequently major emphasis was placed on examinations for the discovery of physical defects and procedures designed to show parents the need for having these defects corrected. This continues to be the major emphasis in school health services. Such examinations are considered of importance not only for case-finding purposes but also for their usefulness in teaching children basic facts about health and in helping them to develop good health habits. In fact, for many schools, health education is considered the principal reason for having school health services.

Probably the most extensive valuation of a school health program is the study done in New York City in 1942, known as the Astoria Study.[2] This study not only pointed out that much wasteful

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repetitive work was going on, which, year after year, resulted in the recording of more defects, often involving the same children, without adequate follow-up activity, but it also showed the way to a more effective program. The conclusions and recommendations of this study have been widely influential. They are particularly significant for teamwork in that the study demonstrated the effectiveness of the teacher in case finding and the importance of her relationships with the nurse and physician as a member of the school health team.

While not all of the findings of the Astoria Study have equal applicability in all of our communities, several basic questions do. These include:

1. What are the major health problems of children in our community?
2. What priorities should be established in providing health services?
3. What are our community health resources and how effectively do we use them?
4. What is the most productive use of the school doctor, nurse, and teacher?
5. For what children should the school provide physical examinations?
6. How can the effectiveness of follow-up services be increased?
7. What is the relationship of the school guidance program to the school health program?

Answers to such questions as these must be sought both within the school in its policies and administrative procedures and in the relationship of the school to the rest of the community. One administrative question has lately been given increasing attention — that is whether nurses in these programs should more appropriately be employed by schools or health departments.

Many people feel that most school health programs are badly in need of review with respect to their content, procedures, and objectives. Large sums of money are spent in these services, with varying effectiveness. Not enough recognition has been given to the ways in which our health problems have changed. Communicable diseases and other acute conditions are now less important. More attention must be given to the problems accompanying growth and development, adolescence, and handicapping conditions of childhood. This will require increased attention to the functions of the school health team and the most effective use of the team members' time.

MEDICAL EXAMINATIONS

A brief recapitulation of the history of school physical examinations will illustrate how concepts of school health services have changed, as well as some different points of view regarding them. Twenty-five years ago annual medical inspections of all school children were customary. Subsequently, as education became effective in increasing the public understanding of the importance of controlling communicable and nuisance diseases and of securing medical care early and seeking health supervision for children, the value of medical inspections diminished sharply. Some form of frequent health examination was still considered important in many places, however, and has not yet been given up. As recently as 1945, a law was passed in one State which provides for Statewide biennial medical and dental examinations of all pupils in public and private schools. Examinations of such frequency and such large numbers cannot be done adequately, are wastefully repetitive, and may give many parents as well as school administrators a false sense of security.

School health studies have demonstrated that effective case finding at less cost can be achieved by having 3 or 4 routine examinations during the 8 school years, with parents present, and using various screening tests and the teacher's observations and her conferences with the nurse for selecting children at other times for referral to the physician. The teacher has been shown to be a good case finder. Moreover, the more parents rely on their own physicians for their children's health examinations, the less will be the need for the school to provide it. The extent to which they do this varies considerably, however, and is related to the family's income.

Such a plan for health examinations has been shown to be effective and less wasteful. It enables the school doctor to serve as a consultant to the school and the school health team to concentrate on the more important health problems

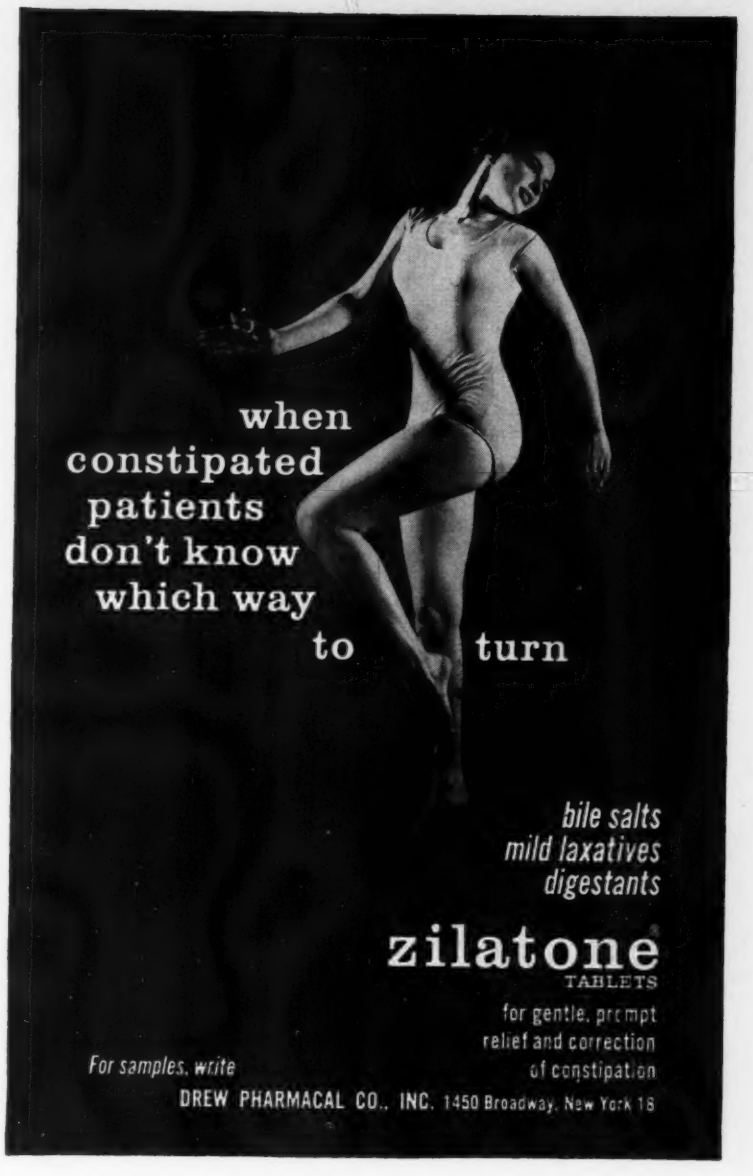
and on securing adequate care for the children who need it.

Limiting the frequency of school health examinations in this way has led many people to the conclusion that this means that school-age children need a health examination only three or four times. Actually what it means is that it is not practical or efficient for the school to provide such an examination more often.

Studies have been made in Rochester, N. Y., of the value of the examination of first-grade children. Most of these children had had physical examinations in kindergarten, either at the school or in their own physicians' offices, so that little new was discovered. The value of the routine first-grade examinations was, therefore, questionable so far as Rochester was concerned. In other communities the examination on entering school is often the first a child has had in several years.

In Washington County, Md., 1,103 examinations were done in the school health clinics in a 2-year period. The most prevalent health problems were upper respiratory difficulties and behavior problems. A number of serious conditions were discovered which were unsuspected. These included 5 children with rheumatic heart disease, 4 with congenital heart disease, 3 with acute rheumatic fever, 1 with malignant but curable kidney tumor, and a variety of others. The discovery among 1,100 children of more than a dozen with serious diseases would certainly bear out the value of the school health examination program for this county.

Another aspect of the school health examinations has received insufficient consideration. The scope of the medical examination when done in school has limitations imposed on it by the unavailability of laboratory tests as well as the physical surroundings. It is essentially a medical screening examination. Those children who need further diagnostic services and treatment must seek this elsewhere. Would it not be more practical to have these examinations done in a clinic rather than in the school? If the child does not go to his own physician for examination, the clinic can schedule immediately any laboratory studies or further visits, thereby insuring more prompt and effective follow-up.



SCREENING TESTS

What other health services should be provided in the school? While most people feel that ideally the periodic health examination ought to be done by the child's own doctor, screening tests of vision and hearing are best done in school where children are in groups. Visual acuity in childhood often changes rapidly and, therefore, vision tests should be done annually. The Snellen test and the Massachusetts vision test have been demonstrated to be efficient screening tests that are carried out most economically and rapidly with groups of children.[2] Hearing tests should be done every two years routinely, with repeat tests on children who do not pass.

These two tests are of great importance for many reasons, among which is the fact that a child needs to see and hear reasonably well in order to progress in school. Another reason, especially valid in public health and education, is that large numbers of children are involved. Moreover, with adequate attention, progression of hearing loss can frequently be prevented and normal hearing may be restored. Between 5 and 10 percent of children fail to pass audiometry tests. These children are in need of further attention. Because defective vision and hearing are so prevalent and can be readily discovered by screening tests and corrected or improved, screening examinations are of utmost importance.

Other screening tests may be of value in the school health program. Periodical measurements of height and weight may be useful when interpreted properly, and are, of course, one of the oldest procedures in school health. Consideration should be given to making routine hemoglobin determination at intervals as a measure of nutritional efficiency. There are now simple rapid urine tests for diabetes, a condition, however, which is not common in childhood and, therefore, questionable for inclusion in a mass screening program. Routine testing for tuberculosis, especially at puberty, should be employed much more widely than at present.

Another screening device as yet little used in school health programs is the pupil's health history as provided by a parent. In medical education much stress

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is placed on learning to take a good history, because such a history often provides much useful information. In school health work the history does not receive much attention. In reviewing the Pennsylvania school health program recently, the medical advisory panel stated that "a medical history can be devised that will be useful in detecting a number of different ailments, including allergies, epilepsy, diabetes, infected tonsils, rheumatic fever, mental illness, and orthopedic defects." Such a history was developed for adults by Cornell University Medical School. Known as the Cornell Medical Index, it is being successfully used in the outpatient department of the New York Hospital. A similar history, filled out by the parent, was tested in the California school health program, and found to be reliable and useful to the doctors and teachers, who were very favorable in their evaluation of it.

POINTS FOR REVIEW

School health examinations include periodic health appraisal, screening tests, and continuous observation by the teacher, with referrals to nurse and physician. This part of the school health program needs objective review so that the most productive use is made of the time of the school health team, and activities of comparatively little value can be reduced or eliminated. The problem of dental caries is an illustration of this:

Dental caries is a condition which is very common and has received a great deal of attention in school health services. Probably 90 percent of children have dental caries. That being so, little is accomplished by frequent dental inspections. It can safely be assumed that every child ought to go to a dentist at least once a year for dental care. Efforts should be directed to getting this done rather than to provide repeated dental inspections.

It is possible to reduce dental caries in children by 40 to 60 percent by adding sodium fluoride to the water supply or by applying it to the teeth periodically. The reduction in the size of the problem through fluoridization, and attention given to education in dental hygiene and helping children get under dental care would be far more productive than repeated dental inspections. Yet for various reasons there are many delays in changing over to this kind of a program.

School health services staff devote a large part of their time to the follow-up of children who are found to be in need of further diagnostic work and care. Much of this responsibility is assigned to the public-health nurse. This is often one of the weakest parts of the program. How productive the procedure actually is varies considerably and should be analyzed by each program regularly. It is the repeated finding and recording of defects about which nothing gets done that has led to much current concern about school health programs.

Since not all defects are of equal significance, it would seem to be possible to devote time to follow-up on the important ones rather than to all that are recorded. Studies of administrative procedures have resulted in more efficient follow-up. But for the most part the school is dependent on the parents, the child's physician, and other outside resources to provide what is necessary. The extent to which such resources are available and the relationship of the school to them is crucial in this phase of the program. In Philadelphia, of 74,940 reported remediable defects in 1951-52, only 30 percent were treated over a 2-year period. Yet Philadelphia is a city where there are many community health and medical facilities.

It is important that the school health program be administered in close relationship to other health programs in the community and not isolated from them In Washington County, Md., the program is a joint responsibility of the department of education and the department of health and is regarded as an integral part of the county's organized health service. This has enabled the county to develop a program in which there is a continuity from pre-school health services to services in the school and to several specialized public-health programs. The fact that the Washington County health department has a well-organized hearing-conservation program undoubtedly accounts for the fact that recommendations for follow-up care of 430 children with ear, nose, and throat problems were carried out for 92 percent of the children referred. Of 293 referrals for tonsillectomy and adenoidectomy, 195 were carried out by the conservation-of-hearing

program and by private physicians. High rates of successful referrals were achieved with other children as well.

Thus, it is possible to achieve considerable success in follow-up care if this is regarded as sufficiently important to expend time and money to do it, in a program which is closely coordinated with other community agencies. Studies have been done which demonstrate that the financial status of the family, the availability of community resources, and the level of education of the parents are significant factors in the parents' carrying out the recommendations of the school.

FOR HANDICAPPED CHILDREN

Perhaps in no other aspect of school health work is the need for genuine teamwork so evident as in services for handicapped children.

Many children have disabilities, often of a chronic or permanent nature, which may create problems in obtaining an education. These are the children who are orthopedically handicapped, children with poor sight and hearing, children who have cerebral palsy, heart disease, epilepsy, allergies, diabetes, and other conditions. Most of them can be educated as readily as other children. But many will need some modification of their educational programs if they are to benefit from educational opportunities. It is generally estimated that about 10 percent of children require special education. These include the physically, emotionally, and intellectually handicapped. There are, of course, many more who do not need special education, but do require special attention from time to time.

In 1930 the White House Conference on Child Health and Protection made this recommendation: "A State program for crippled children should be built upon the rights of individuals to an equality of opportunity, especially from the educational viewpoint. Academic education and prevocational and vocational guidance and training adapted to crippled children should be available to them at all times in which they are physically able to receive the same, regardless of the location of their residence. Physical care and education designed to produce self-supporting and useful citizens should be carried on together."

Most handicapped children can be educated in regular classes or in special classes in regular schools. The trend is clearly in this direction. Special classes in day schools are becoming increasingly common. Flexibility in school administration is, of course, requisite. Such schools must have adequate health and guidance services and teachers with training in the education of exceptional children.

Schools can make a further contribution by making some provision for education in the preschool years. Children with cerebral palsy and children with impaired hearing can benefit greatly by early education. Many so-called deaf preschool children, with a proper diagnosis, a hearing aid, auditory and speech training, and training in lip reading, will get much more out of school if they have the advantages of special training in a nursery school. Such children today are often subjected to needless segregation in a residential school.

Epileptic children on the other hand are commonly excluded from school altogether. Most of them do not need special education, but they do need a chance to go to school with other children, which they usually are able to do. About 75 percent of epileptic seizures can be controlled by medication. Even if a child does have a seizure in class no one is harmed by this if the teacher is calm and helpful. The teacher's attitude will set the stage for the attitudes of the children.

The placement of children in special classes requires expert medical and educational judgment and should be done only after careful diagnostic work. Children who are in special classes should be examined periodically to see whether such placement is still necessary. A review of children in special classes done in New York City revealed that 58 of 182 in sight-conservation and Braille classes, or 31.9 percent, were inappropriately placed. Fifty-four of these were reported to belong in regular classes. In the same study, of 74 children in cardiac classes, 87.9 percent "probably did not require placement in the special classes." The report further states that "modifications of the school program * * * should be individualized in terms of the changing needs of individual children. The primary objective should be to return as many children as possible to regular classes in as short a time as possible."[4]

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1. Bradley, J. E.: Mod. Med. 20:71, No. 20, 1952.

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is receiving increased attention is that of the social and emotional development of children and the problems which sometimes develop. These may be more common today or we may be more interested in them. The teacher is in a good position to recognize attitudes and behavior in younger children which may be suggestive of the later development of delinquency.

More adolescent children are reported by the juvenile courts to be in difficulties than in the past, and this places on us a responsibility for dealing with these problems. The school social worker, or visiting teacher, is concerned principally with children whose behavior, attitudes, or family situation are such that they require special attention if they are to benefit from their educational opportunities. The school social worker is frequently able to assist the school staff in improving the child's school adjustment. When the pupil is to be referred to community social agencies or comes under the care of the juvenile court, the social worker is involved. This aspect of the school health program is taking on increased significance in many urban areas. Although often considered a part of the guidance program rather than the school health program, little reason exists for continuing to separate them.

FOR ADOLESCENTS

The problems of adolescents are especially pertinent to the health programs in secondary schools. There is a greater interest in adolescence than ever before. In fact some people believe that just as the period of infancy and early childhood formerly received a concentration of attention in pediatrics and public health, so we are now moving toward the adolescent and devoting more time to his problems of growing up and seeking independence in our ever more complex society. In adolescence psychological problems take on greater significance. As teenagers are apt to look elsewhere than to their own parents for guidance, the schools through counselors and others often have an opportunity to be helpful to them.

Many parents are unprepared to cope with the various phases of adolescent development. For many years health workers have emphasized anticipatory guidance for parents of preschool children, but only recently has it been suggested that similar guidance might be offered to parents of pre-adolescent children.

An obstetrician, Dr. Samuel Kirkwood, Commissioner of Health in Massachusetts, recently stated, "Of all times in the life span of a woman, most difficult is this jump from girlhood to womanhood and the responsibilities of physical reproduction. Literally overnight the young girl becomes a totally different person. She is no longer the same to herself. Her position in the family is as changed as her place in the community. She looks at no one, and no one looks at her, in the same light as before the event of puberty. Our civilization places great restrictions upon her and we give her at best little help in this trying time. Only intelligent, sympathetic support can resolve the conflict of necessary dependence and equally necessary self-assertion which marks this time of life."[3]

The concern of the previous generation of health workers was directed to the problems of maternal and infant mortality. A more positive purpose is expressed by Dr. Kirkwood in his concern for healthy children and healthy families. Many obstetricians and pediatricians today believe that the most strategic time to prepare for satisfactory childbearing and childrearing is during the period of adolescence. In accepting this opinion health services, health education, and health counseling must be coordinated in more effective ways to capture the interest of adolescents in preparing to meet their responsibilities of the future.

Dr. Roswell Gallagher's adolescence clinic in Boston represents a pioneer effort to deal more constructively with the young adults of this age period. Similar clinics are in the process of development elsewhere. Problems of adolescence may well be the major challenge of our generation, just as infant mortality was for the previous one.

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Improved outlook in congenital heart disease*

Recent advances in the surgical treatment of congenital heart defects have stimulated renewed interest in these conditions. While precise figures on the number of people in our country afflicted with such impairments are lacking, it appears that the number may exceed 50,000. A careful study made in England† indicates that the incidence of congenital heart disease among the newborn is about 3½ per 1,000 live births. Translated in terms of our experience, this means that about 14,000 babies a year in the United States are born with impairments of this kind. Many of these defects are not compatible with life, with the result that the mortality from them is extremely high shortly after birth. Of the more than 9,200 deaths ascribed to congenital malformations of the circulatory system in 1955, no less than 75 percent occurred during the first year of life. These deaths accounted for nearly 7 percent of the total infant mortality, which figure somewhat understates the actual toll, because the reporting of congenital heart disease as a cause of death in early infancy is incomplete.

The mortality rate from congenital malformations of the circulatory system drops very rapidly from infancy to ages 1-4, but thereafter changes relatively little. The death rate remains at a little over 1 per 100,000 between ages 5 and 25, and then dips somewhat below that level. Among infants, the mortality rate from this cause is higher among males than among females; in each sex the rate is higher for white babies than for nonwhites, but this may reflect, in part at least, the greater underreporting of such deaths in the latter group.

Less than 4 out of every 10 infants with congenital heart disease survive to their first birthday, according to the English study previously cited. Of those who reach age 1, about 5 percent die before attaining age 5, reflecting a mortality several times the average. The death toll is also abnormally high at succeeding ages, due in large part to intercurrent infections, the most serious of which is subacute bacterial endocarditis. Furthermore, many children with congenital heart disease subsequently acquire rheumatic fever and hence experience added cardiac damage.

A number of operative procedures for correction of various congenital heart defects have been developed during the past 20 years. The operative mortality associated with the several types of operation varies greatly; for some types it has been reduced considerably, but in the more delicate and complicated procedures the mortality is still rather high. It is too early yet to evaluate the long-term results of cardiac surgery for congenital defects, but studies indicate that a number of such patients found suitable for operation have been enabled to carry on a fairly normal degree of activity. For example, a six to eight year follow-up study of 100 consecutive children who had been operated on since 1946 in a Chicago hospital for tetralogy of Fallot,‡ popularly known as the blue-baby operation, showed that 86 were still living. Of these, 68 were able to lead virtually a normal life, except for avoidance of violent exercise or competitive athletics. A follow-up investigation of cases operated on for the same condition at the Johns Hopkins Hospital§ during 1944-47 showed that of those surviving five

*Reprinted from *Statistical Bulletin*, Metropolitan Life Insurance Company, October 1957.

†MacMahon, B., McKeown, T., and Record, R. G., "The Incidence and Life Expectation of Children With Congenital Heart Disease," *British Heart Journal*, Vol. 15, No. 2, p. 121, 1953.

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to eight years after surgery, three fourths were considered to be in good condition; the most favorable results were for patients between 8 and 12 years of age at time of operation.

Not only has cardiac surgery improved the outlook for patients with many conditions which formerly were considered to be practically hopeless, but it has also proved a great stimulus to research in this field. As a result, new operations are likely to be developed which will permit the extension of surgery to more complex congenital defects. At the same time, various devices are being developed to increase the scope and safety of such surgical procedures. Accordingly, the prospect is good that an increasing number of patients with congenital heart conditions will survive and be rehabilitated. Furthermore, the risk of streptococcal infections in congenital heart disease and of superimposed rheumatic heart disease can be largely counteracted by the routine use of chemotherapy.

Research along other lines, too, may eventually be fruitful in controlling congenital heart disorders. Little is known of the causative factors. German measles in the mother during the first trimester of pregnancy is a cause of such disorders, but this accounts for only a minor proportion of the total. Further investigations are being made of the role of infections in pregnant woman and of the part played by genetic factors.

Program for the cerebral palsied*

Willis C. Gorthy, C.E., and Martin G. Moed, A.M.†

Cerebral palsy is characterized by paralysis, weakness, incoordination, tremors, involuntary motion, excessive rigidity, or stiffness caused by pathology of the motor centers of the brain. This affliction may apply technically to adolescents, adults, or the aged. However, cerebral palsy is usually considered to mean those conditions resulting from an anomaly, injury, or disease that originates in the developing infant before or during birth or in the first years of growth.[1a]

Damage to the brain may result in involvement of the upper and lower extremities and frequently includes the muscles of the trunk, neck, head, face, and breathing mechanism. Because cerebral injury is not limited to a single area in the brain, numerous associated defects may accompany motor involvement. These may include one or more defects in speech, hearing, or vision, mental retardation, convulsions, and behavior disorders. The classification of various types of cerebral palsy is based on physical signs. A high percentage of cases may be classified either as spastic or athetoid types. In athetosis the individual displays involuntary, incoordinate, uncontrollable, purposeless movements. The spastic condition is characterized by the appearance of stiffness. Usually the spastic is able to move the affected limb voluntarily, but the motion may be explosive, jerky, slow, or poorly performed.[2]

The number of cerebral palsied in this country is difficult to determine. Three major studies analyzed in 1955 indicate that the prevalence rate of cerebral palsy is between 300 and 350 cases per 100,000 population.[3] Of this number, 100 cases are under 21 years of age and 200 are 21 years of age and over. On the basis of the above figures it is estimated that the total number of cases in the United States falls between 495,000 and 577,500.

HABILITATION

Because of the congenital or early life injury, the cerebral-palsied child will grow and develop in an atypical personal and social environment. This often leads to a poorly adjusted, dependent, socially incompetent person who may be more disabled by personality deviations than by his physical or mental limitations. An in-

*Reprinted from *Public Health Reports*, September 1957.

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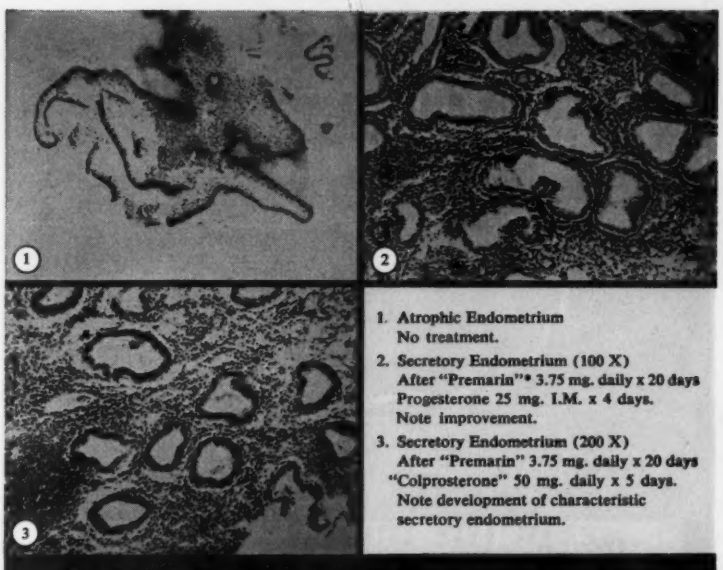
dividual handicapped later in life has had an opportunity to develop normal living patterns. A child handicapped throughout life has not. This factor underlines the essential difference between habilitation and rehabilitation. The development of basic life adjustment patterns as part of treatment and training is the goal of habilitation. Through this process, individuals are helped to become independent and useful citizens within the limits of their disability.

The process of habilitation must, therefore, begin early if it is to help the child develop proper habits and attitudes about himself and others which will serve as a constructive basis for adjustment to the demands of society.

It is desirable to achieve the following habilitation goals:[3b]

- The patient should be capable of some form of locomotion, either independently or by means of crutches or other types of apparatus.
- He should be capable of self-care and self-help in eating, dressing, toileting, and similar activities.
- He should possess an effective means of communication, by speech, writing, or other means.
- He should appear as normal as possible.
- He should be able to earn money, or its equivalent, through his own efforts either in competitive industry or in a sheltered workshop.
- He should be able to employ his spare time in self-satisfying avocations and in social contacts.

To achieve these goals, habilitation of the cerebral palsied cannot be considered from a single aspect. Emphasis must be placed on the problems as they affect the "whole child." Unless the medical, psychological, social, educational, and vocational needs of the individual are integrated into a program, the cerebral palsied will not be served adequately. The multiplicity of handicaps creates diverse and complex problems necessitatng the provision of many types of costly services and a lengthy habilitating process. It is rarely possible for one group working alone to provide the necessary services. The responsibility for service must be shared by the individual, the family, and the community, all working toward a common goal.



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COMMUNITY PLANNING

Total habilitation requires the interrelationship of all health services. These depend on one another and must be closely coordinated to be fully effective. By utilizing the entire resources of the community, the highest potential of the cerebral palsied can be developed. Only in this manner can the economic burden on the family be relieved and the child grow up to become a productive, better adjusted member of society.

In a sound community program special services for the cerebral palsied will be integrated with the existing general health, welfare, and education programs. If necessary, the various agencies should modify existing programs to meet the needs of the cerebral palsied. One way of accomplishing this is to employ specialists in this field to work with the personnel of the general service agencies. If proper facilities do not exist or cannot be extended or supplemented, it may be necessary to establish separate services for the cerebral palsied.[4a] However, such services should be based on need rather than on the desire of a small group to control a separate program.

The community plan for direct habilitation services should include—

- Help for the parents and family as early as possible so that they can learn to live with and understand the child with cerebral palsy.
- Medical services which have the facilities for early diagnosis, therapy, surgery, and general health care.
- Special educational programs that meet the needs of the child with brain damage and associated disabilities, especially mental retardation.
- Vocational guidance, training, and placement to help develop full use of the individual's vocational capacities.
- Sheltered workshops for those who cannot meet the competitive demands of industry and for those who need special work preparation.
- Homebound work programs when workshops are not available or are inaccessible.
- Recreational or diversional activities to meet the needs of those who are too

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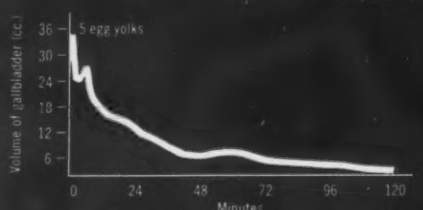

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PARENT SERVICES

Although parents are not usually considered as a service, no one else in the child's program will become more involved in habilitation. The parent might be considered as a catalyst. With proper care, favorable attitudes, support, and encouragement, the child's chances for success can be greatly enhanced. Without proper parental help and guidance, the child's chances for performing at maximum capacity will be retarded. Because the mental health of the family is a vital part of the habilitation process, it has become a requisite in the treatment of the cerebral-palsied child to clarify parental attitudes concurrently with the child's therapeutic program. If aid for the family unit is planned as part of the complete treatment program, the chances for success of the habilitation effort will be increased.

The emotional impact of having a crippled child; the feeling of guilt, resentment, and insecurity; and the practical everyday problems of raising the child must be carefully considered. Some of these problems can be alleviated through educational and counseling programs and by forming parent groups who will share the fatiguing burden of constant care and attention. Through education, parents get an opportunity to understand the needs, wants, abilities, and limitations of the cerebral palsied. The program should stress the parents' role in encouraging the child to develop independence and especially in striking a balance between too much protection and encouragement and too little. Through counseling programs the parents gain insight into their feelings of guilt and ambivalent attitudes toward their child and the reasons for family conflicts. By study, observation, and counseling they will come to see their cerebral-palsied child more objectively as an individual and as a personality. In this manner a sounder parent-child relationship can be established.[4b]

The parents become the cornerstone upon which the child builds a foundation for adjustment. Behavior maladjustment in the cerebral palsied may result from organic brain damage, frustration caused by the handicap, or rejection by the parent, family, or society. It is, however, generally believed that environmental factors have a greater effect on personality deviations than the brain injury condition. The personality characteristics of a secure, mature, loved child may have greater prognostic significance than the disability itself. A leading medical authority in the treatment of cerebral palsy states, "As yet no one is able to prognosticate what a well-motivated child with even a severe disability and mental retardation can accomplish if given adequate treatment and parents who are interested in helping the child."[4a]

MEDICAL TREATMENT

Treatment and habilitation of the cerebral palsied should be used synonymously. The overall therapeutic approach must take into consideration that the child has not been able to develop normally. It must, in addition to therapy, help the child gain security, promote relaxation, and relieve anxiety in both the child and his parents.[6a]

The goal of treatment is to help the individual function as effectively as possible with special emphasis on learning to perform activities essential to daily living. The logic of the treatment aims is pointed out by Deaver. "Learning to perform the activities necessary for daily living begins as soon as the disabled person wakens in the morning. There is little value in being able to ambulate if one is unable to get out of bed, dress, or attend to one's toilet needs. The abilities to ambulate, speak, use the hands in self-care activities, write, or produce salable goods are necessary for economic independence. Education is desirable but no one is paid for the knowledge in his head. If a person cannot speak adequately or use the hands, of what economic value is an education? It is for these reasons that learning to perform the activities essential for daily living should be the primary objective of all treatment."[5b]

The general methods of treatment are physical restorative services, surgery, drug therapy, and treatment for associated defects. Physical restorative services are more frequently recommended than

any other type of treatment. Among these services are physical therapy, occupational therapy, and bracing aids.

Physical therapy is primarily concerned with improvement of locomotion, stretching exercises, muscle reeducation and strengthening, and improvement in balance. Occupational therapy is mainly functional. It attempts to teach and develop self-help skills and feeding and dressing techniques. This is usually accomplished through exercises designed to improve reach, grasp, and fingering abilities. Bracing is the principal method used for preventing and correcting deformities, supporting the body weight, and controlling involuntary movements.[1e]

Surgery and drug therapy are used as aids in achieving physical restoration. Surgery is utilized only to surmount some definite obstacle to progress. The purpose is to improve functional mobility and appearance. In general, there is a cautiousness concerning surgical intervention. It has been stated that physical restoration in growing children, such as achieved by physical therapy and bracing, should always be given an adequate trial before surgery.[7] However, there have been enough advances reported in orthopedic and neural surgery to consider it a major treatment method.

Drug therapy has been used with widely varying results for convulsions and muscle relaxation. A great deal of research is presently being conducted on all phases of drug therapy. The control of seizures through the use of such drugs as Dilantin and phenobarbital has been found effective and is presently widely used. It was found in a study just completed at the Institute for the Crippled and Disabled that certain drugs tend to relax tight or spastic muscles, making therapeutic exercises more effective. Another drug used in the same study was found to help reduce athetoid tremors and uncontrolled movements. The reason seemed to lie in its unique ability to prevent emotional tension from restricting physical performance.[8]

Any handicapping conditions accompanying cerebral palsy should be treated as early as possible for they can seriously impair the entire habilitation effort. The child who cannot express his feelings because of serious speech involvement may find an outlet in a temper tantrum or negativeness which in turn may interfere with a consistent therapy program. Speech therapy assists the child to improve the ability to communicate by means of speech or other methods. It attempts to develop proper breathing habits and improve such secondary factors as drooling, grimacing, swallowing, and chewing. The speech therapist also gives audiological assistance to those who need hearing training. The cerebral palsied with visual perceptual impairment may have more difficulty learning to travel independently because of the inability to judge distances of an oncoming vehicle. An untreated squint, for example, may result in deterioration of vision. Qualified ophthalmological care is essential to improve crossed eyes, prevent and treat impaired vision, and relieve headaches or other results of eye strain. Dental care and nutritional needs must also receive continual attention.[9]

The complexity of the varying handicapping factors makes it difficult to prognosticate the benefits to be derived from treatment. Parental acceptance and understanding, severity of the physical disability, and mental capacity are important considerations. Denhoff suggests the use of the pneumoencephalogram technique to determine the degree and location of brain lesions. These findings have been used as a basis for predicting potential for "good futures."[9b] However, he cautioned that this technique does not take into account the multifaceted problem of personality, family, or social factors, which also influence the achievement of habilitation goals.

EDUCATIONAL PLANNING

Education must be considered as part of the total habilitation process and cannot be realistically separated from other therapy the child receives. In most communities, clinic activities and educational programs are planned together to provide for a closely integrated program of physical therapy, occupational therapy, speech therapy, and special education. The therapists and teachers, to be fully effective, should at the same time aim at the common goal of developing a well-adjusted child as far as physical and mental abil-

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ities allow. Especially is it necessary that the educational process help establish a feeling of self-respect and self-confidence, and provide the opportunity to achieve success and gratification. The cerebral palsied must be helped to face his limitations realistically and at the same time be encouraged to utilize his capacities to the fullest.

Brain injury can so complicate the normal learning process that it is important to know about mental as well as physical limitations. By being thoroughly familiar with each child's problems, the most appropriate teaching techniques can be utilized. For example, many cerebral palsied with visual perceptual deviations have great difficulty seeing what others see when they look at the same object. It may appear distorted to the child, leading to an inappropriate or incorrect interpretation. The influence of this difficulty on the ability to read may be very handicapping and will probably affect the whole course of the individual's academic development. If this visual defect is known before assignment to a class, techniques such as special lighting or having the child hold reading material on a vertical rather than a horizontal plane may improve performance. By recognizing the handicaps that affect the ability to learn, many personality disturbances resulting from failure and frustration can be avoided.

Another educational problem is the large proportion of mental retardation found in the cerebral palsied. An analysis of a number of studies revealed that 72 percent of those with cerebral palsy have below normal intelligence quotients, compared with 16 to 25 percent of the general population.[4c]

Educational facilities should include a special class for the cerebral palsied who display multiple handicaps and mental retardation. Other children can be placed in special classes for all the orthopedically handicapped or in a class for the slow learner if the physical involvement is not too extensive. For those who cannot get to school because of severity of the disability or transportation difficulties, home instruction should be considered. This type of school placement is the least suitable because it deprives the individual of the social experience of meeting and being with other children. The goal should be to place the cerebral-palsied child in a normal setting as soon as he is capable of profiting from the experience.

To the extent possible, education should be directed toward economic usefulness and productiveness rather than solely toward the fulfillment of academic achievements. In order to accomplish this, a total educational program must be provided. Unfortunately, many communities provide for special elementary education but do not have special facilities for secondary education or vocational training. The individual with mild physical and mental impairment is usually placed in the regular or normal curriculum after the elementary program. However, the cerebral palsied with moderate to severe handicaps may have vocational potential if vocational training is made a part of the educational process. The emphasis in this group should be on semiskilled, unskilled, or service (porter, messenger jobs) rather than on academic or skilled-trade training. This type of program offers direction and is meaningful to the adolescent. It helps him accept his limitations but allows for training within his vocational capacities.

VOCATIONAL ADJUSTMENT

The cerebral palsied encounters many obstacles as he approaches adulthood, but few will be as disheartening or as frustrating as the search for employment. A survey of 200 ambulatory adults in New York City revealed that only 42 were employed.[10] Two studies in Schenectady and Erie Counties in New York State indicated that 61 percent of the cerebral-palsy population were unemployed and 16 percent were employed part time.[11] Similar results could be found in every community.

At the Institute for the Crippled and Disabled in New York City, we are investigating the vocational difficulties encountered by the adult cerebral palsied. Each individual, during a 7-week period, is given the opportunity to work at more than a hundred different jobs, covering a

wide range of related employment opportunities. In addition, his social history and mental and physical functioning are thoroughly investigated.[12]

The study thus far includes 110 cerebral palsied whose average age is 22 years. Persons selected for the study were considered to have serious employment problems by the New York State Division of Vocational Rehabilitation. It was found that 60 percent of the group demonstrated employment potential. The remaining 40 percent could not meet competitive industrial standards because of physical, mental, or emotional difficulties. Also noted was the fact that 52 percent displayed behavior deviations that affected maximum performance. The majority of the cerebral palsied studied were not ready to make the transition from school to work. They had no idea of the kind of work they could do nor did they understand the responsibilities placed upon an employee or the demands of a work situation. Anxiety concerning inability to compete with the normal population was noted in 75 percent. Undoubtedly, this was an important reason for the high proportion of behavior maladjustments.

It was also found that those in the group that did not demonstrate employment potential were more physically or mentally handicapped than the others. In addition, the more impaired group generally displayed more acute emotional difficulties. These findings indicate that a proportion of the cerebral palsied are too handicapped physically to be able to compete under normal industrial conditions. This creates a severe and irresolvable vocational problem unless some special resource is established to meet these employment needs. In some instances this might be a sheltered workshop, a homebound work program, or, for those very severely involved, a recreational or diversional program. The study indicates that the inability to adjust vocationally is due, in part, to the lack of vocational facilities. This limitation is a major contributing factor which intensifies the behavior disorders prevalent in the adult cerebral palsied. It was noted that the young person who is severely handicapped does not display the extent of personality deviation that is apparent in the older person who has been idle for many years.

As pointed out in a previous section, there are few vocational training opportunities for the cerebral palsied. In the group that demonstrated employment potential, 92 percent had not received any vocational training, although 32 percent had completed high school. This factor is particularly serious for the habilitant whose experience is so restricted. Adequate training, even if it is at the lowest skill level, can instill in the individual a feeling of personal worth and confidence. It also can help the cerebral palsied to learn the importance of taking responsibility, of following instructions, and of getting along with others. These are basic factors in making a satisfactory vocational adjustment and are important in the habilitant's development.

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International variations in mortality*

Although differences in mortality between countries have been diminishing in the past few decades, wide international variations are still observed. For example, in Norway, Sweden, and the Netherlands the age-adjusted death rate for males was less than 9 per 1,000 in 1954, while in Finland, Sweden's neighbor, and Japan the corresponding rate was somewhat over 13 per 1,000. If reliable data were available for the underdeveloped countries of the world, many would undoubtedly show even higher levels of mortality.

The United States occupies an intermediate position with respect to mortality among males, the death rate among our white males being 10.6 per 1,000 in 1954. On the other hand, the mortality record for white females in the United States is close to the best in the world. Their death rate adjusted for age differences in the population was only 6.9 per 1,000; Norway alone had a lower female mortality (6.4).

Each of 19 countries studied shows a higher death rate among males than among females, but the sex ratio varies from one country to another. The widest differences are found in the United States, England, and France, where the ratio of male to female mortality is 1½ to 1. At the other end of the scale, are Denmark, Sweden, and Israel, where the mortality among males exceeds that for females by 20 percent.

International data on mortality from specific causes are instructive, even though they are not strictly comparable. The variations are influenced by the general level of medical practice, modes of certifying causes of death, and classification procedures.

The cardiovascular-renal diseases are a dominant item in the mortality of industrialized countries throughout the world. The proportion that this group of diseases is of the total mortality ranges from nearly one third in France and Japan to more than one half in the United States, Canada, Scotland, Australia, and New Zealand. The age-adjusted death rate from the cardiovascular-renal diseases among males in 1954 was as low as 336 per 100,000 in Norway and as high as 641 in Scotland, the rate in the United States being 584; among females the range was from 247 per 100,000 in France to 483 in Scotland, the corresponding rate in our country being 381. Our record for the cardiovascular-renal diseases is comparatively less favorable than that for all causes combined. Although the United States ranks 8th with respect to total mortality among males, it is in 16th place for the cardiovascular-renal diseases; the disparity in ranking is even wider for females, their position dropping from 2d to 13th place.

The mortality from cancer and allied conditions (malignant neoplasms) likewise varies considerably from one country to another. Among males, the death rates in 1954 were lowest in such widely separated countries as Sweden (134 per 100,000), Israel (136), Italy (138), and Japan (140), and highest in Scotland (213) and Finland (216). Among females, the mortality from this cause ranged from 106 per 100,000 in Japan to 169 in Denmark. In every country but Israel, the cancer death rate was greater for males than for females.

Throughout the world, marked progress has been made in reducing the death toll from the infectious conditions. As a consequence, such diseases as pneumonia and tuberculosis, which not many decades ago loomed large in the total mortality, now account for only a relatively minor proportion of all deaths in many countries. In the United States, for example, the age-adjusted death rate from pneumonia in 1954 was 25 per 100,000 among white males and 16 per 100,000 among white females—less than 3 percent of the total mortality in each sex. The death rate from tuberculosis of the respiratory system among our white females is down to the extraordinary low level of 4 per 100,000, and the experience in our country is not unique.

Very few of the countries under review have a higher accident rate than the United States or Canada. The un-

*Reprinted from *Statistical Bulletin*, Metropolitan Life Insurance Company, October 1957.

enviable record for these two countries results largely from their comparatively high motor vehicle accident mortality. Only Australia and Germany show greater death rates from this cause among males; the United States and Canada had the poorest record with respect to the frequency of motor vehicle accidents among females.

The suicide rate is subject to particularly wide international variations. Among males, the death rate from this cause ranged from a high of 34 per 100,000 in Finland, and 32 in both Japan and Switzerland, to 6 per 100,000 in Israel. Among females, the suicide rate varied from 19 per 100,000 in Japan to 2 in Norway.

Progress report on air pollution*

Vernon G. MacKenzie, B.S.
Assistant Chief, Research and Development Division of Sanitary Engineering Services Public Health Service

Air pollution, in its modern form, may be taken as a prime example of newly developing public health problems associated with increased urbanization, intensified industrial activity, greater use of transportation, fuel usages, and refuse disposal practices. Activities of this kind, connected as they are with modern urban living and a higher standard of living, are essential and beneficial to organized society; the problems they create, therefore, are strikingly characterized by the fact that they are not solely detrimental to public health. And, too, unlike the older problems of communicable diseases, these new problems cannot be "stamped out." They must, however, be controlled and kept within safe bounds.

Several factors contribute to the increased complexity of the air pollution problem: changes in fuel usages, increased per capita use of energy, and increased per capita consumption of materials. A revolution in fuel usage has occurred in the last half century. In 1900, 90 percent of the fuel energy in the United States came from solid fuels; today, 70 percent comes from liquid and gaseous fuels. Equally striking has been the huge amount of energy made available to us, and the greater per capita use of raw materials and of finished products from them. Visible smoke pollution problems, which could be abated by relatively simple measures, have been superseded by the more complex problems of contamination by gases, vapors, and miscellaneous particulate emissions.

Air pollution problems are widespread throughout the United States. One survey has estimated that 10,000 communities in this country are affected by air pollution. The magnitude of local problems ranges from contamination produced by a single factory stack to "smogs" spreading and mixing over entire metropolitan areas.

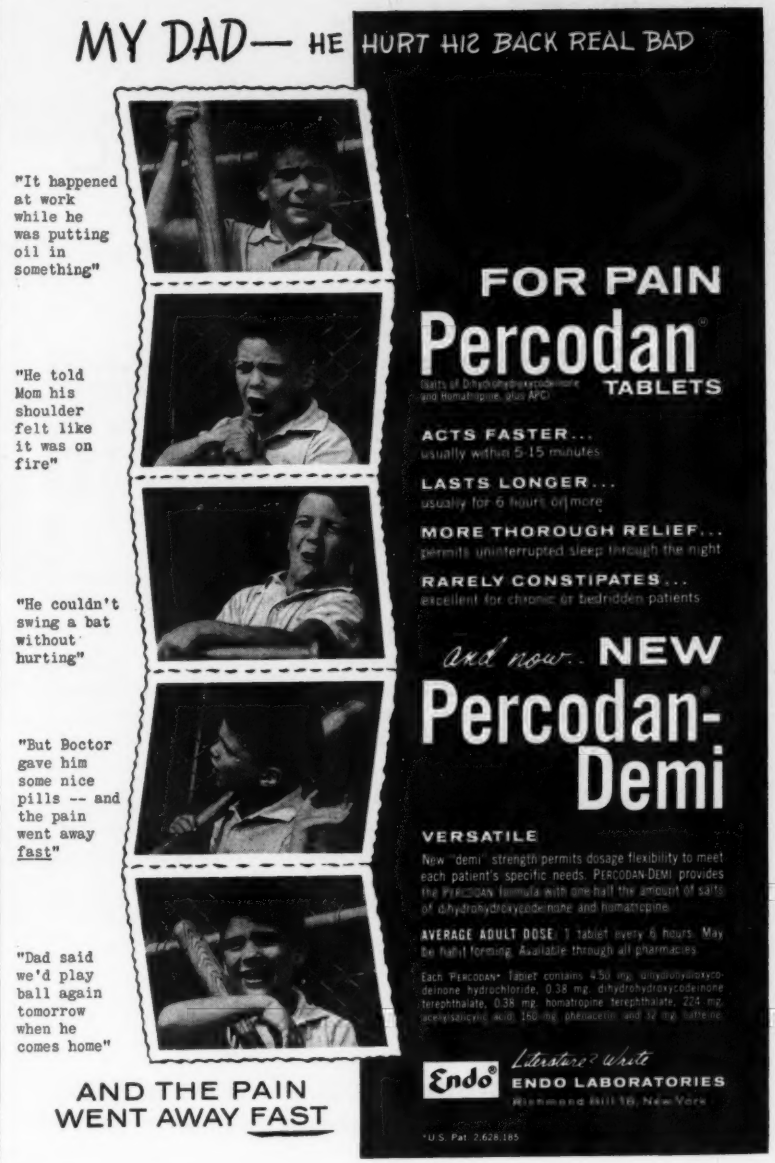
Evidence of damage to livestock, vegetation, and physical structures by various air pollutants is reasonably well documented, although incompletely understood. Economic losses from such causes have been estimated at more than $1.5 billion per year.

Equally well documented is the fact that air pollution can cause personal discomfort, such as eye and respiratory irritations, or even human illness and death under conditions unfavorable to the atmospheric dilution and dispersion of contaminants. Of perhaps equal public and professional concern, although without documentation, has been the potential long-range effect of pollutants on human health. Although the evidence of causative relationships between specific atmospheric contaminants and the effects upon humans is incomplete, the intensity of pollution has impelled undertaking air pollution controls in many areas even in the absence of knowledge on specific etiological relationships.

AIR POLLUTION AND THE LAW

Local ordinances for the control of air

*Abridged reports from the 56th Conference of the Surgeon General of the Public Health Service and the Chief of the Children's Bureau with the State and Territorial Health Officers, Mental Health Authorities, and Hospital and Medical Facilities Survey and Construction Authorities, November 3-8, 1957, Washington, D.C. Reprinted from *Public Health Reports*, January 1958.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pollution have long been a part of American government. The first smoke-control laws were adopted by Chicago and Cincinnati in 1881. Comprehensive control of air contaminants, however, is a recent development. The major impetus in the enactment of air pollution control legislation has come since World War II. In a recent study, it was found that more than 80 percent of the ordinances of 110 cities, representative of various population sizes, have been enacted within the last 15 years. Further evidence of the growth of local programs is afforded by the Directories of Governmental Air Pollution Agencies published in 1955 and 1957, the number of local agencies listed increasing from 115 to 279 in the 2-year period.

On the State level there has long been a history of sporadic ad hoc activity of technical study in connection with specific air pollution problems, principally by State industrial hygiene organizations. Recently, however, there has been increasing interest in the organization of State programs explicitly authorized by statute. The first of these laws was passed in Oregon in 1951. It established an air pollution authority in the Oregon State Board of Health with powers to study and legally enforce all aspects of air pollution. Similarly comprehensive legislation in Massachusetts and New Jersey followed in 1954. A State air pollution program was authorized in California in 1955 and in 1957 in seven additional States (Colorado, Delaware, Florida, Minnesota, New York, Ohio, and Washington) and the Territory of Hawaii.

The circumstances contributing to the enactments differ from State to State, resulting in considerable variation in the laws, and there has been but little operating experience under them. Several features of these laws, however, deserve mention:

1. All of the laws would apparently authorize studies and technical assistance for local problems.

2. Ten of the twelve enactments extend coverage to all air pollution problems; two would restrict the authority to instances detrimental to public health.

3. Eight of the twelve laws provide for some legal control of air pollution on a State level.

4. In every instance, the State health department is named as the operating agency; in five instances, a board, commission, or authority is also established with interests other than health represented.

Only one legislative step has been taken in relation to an interstate air pollution problem. Under legislative authority enacted by the States of New Jersey, New York, and Connecticut, and ratified by Congress in 1956, the Interstate Sanitation Commission is studying the interstate problem in the New York-New Jersey area and will report to the legislatures of these two States.

If there is any lesson to learn from the history of State and local air pollution control legislation to date, it is that the individual law or ordinance should be tailored to the situation and take into consideration the varying circumstances and needs of the jurisdiction involved.

PUBLIC HEALTH SERVICE PROGRAM

The Public Health Service program on air pollution, authorized by the 1955 act, is now in its third year. The act authorized a 5-year program of research and technical assistance at a maximum annual cost not to exceed $5 million. It specifically reserved to the States and local governments the responsibility for legal control of air pollutants. Approximately $8.5 million has now been appropriated under the act, $1.75 million in 1956, $2.75 million in 1957, and $4 million in 1958.

The major emphasis in the program is on research. Approximately 80 percent of the resources are devoted to this purpose, and the remaining 20 percent are used for training and technical assistance on specific problems. From another viewpoint, approximately 60 percent of the available budgetary resources are devoted to physical science and engineering control studies and 40 percent to studies on the effects of pollutants on health. From a third viewpoint, about 45 percent of the program resources are used for intramural Public Health Service activities, with the remainder divided about equally between outside grant and contract stud-

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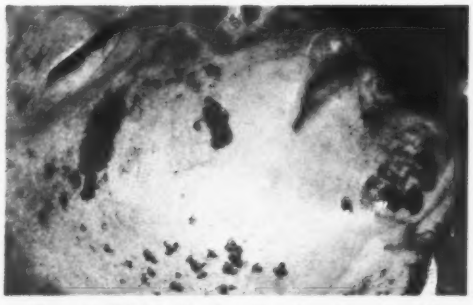

Case #1 Right cheek, after treatment with Adrenosem

Case #2 Left cheek untreated

Case #2 Right cheek, after treatment with Adrenosem

Write for literature describing the action and uses of Adrenosem Salicylate

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1. *Dripps, R.D.: Hazards of the Immediate Postoperative Period, J.A.M.A. 7:795 (Oct. 19, 1957) [This reference reviews postoperative hazards, and does not refer to Adrenosem Salicylate]*
2. *Ersner, M.S., and Lerner, S.S.: M. Clin. North America 40:1749 (Nov., 1956)*
3. *Peele, J.C.: Further Observations on the Use of Adrenosem Salicylate in the Control of Hemorrhage from the Nose and Throat, N. Carolina M.J. 17:98 (March, 1956)*
4. *Brown, W.S.: The Use of Adrenosem Salicylate to Control Postoperative Bleeding in Plastic Surgery: Dermabrasion, Northwest Medicine. In Press.*
5. *Wilkins, B.D.: Gastrointestinal Bleeding as Seen by the Proctologist, J.A.M.A. 163:1214 (April 6, 1957)*
6. *Orzac, E.: Medical Care of the Child Patient Before and After Adenoidectomy and Tonsillectomy, N.Y. State J. Med. 55:886 (Mar., 1956)*
7. *N.N.R., 1957, p. 265*

ies. All grants and contracts are on a project basis; the act does not authorize general support or formula-type grants.

Although much of the research is necessarily of long-term character, some results are already appearing in reports and publications concerned with the identification and measurement of pollutants in the atmosphere, the factors affecting the behavior and dispersal of pollutants in the atmosphere, the effects of air pollutants, and means for their abatement.

Work under way on improved methods of analysis has led to a promising development for continuous monitoring of fluorides and an improved smoke inspection guide for use by local authorities. Other areas in which progress is being made include tracing pollutants to specific sources, filter fabrics for high temperature gas streams, and improved design for refuse incinerators.

The lack of basic data on the nature of air pollution has led to the creation of the National Air Sampling Network covering 110 urban and 25 non-urban sites. This network, operated in cooperation with States and communities, may provide data on air pollution which can be correlated with geographic, demographic, meteorologic, and other variables.

That part of the program concerned with the effects of air pollution on human health has initiated toxicological studies to determine the effects of pollutants on animals and biological systems, and clinical and epidemiological studies to determine the effects on human beings. The compilation and publication of mortality data by cause of death for 163 metropolitan areas have provided an important working tool for use in this and other fields of study. Another example of medical research recently initiated is a study undertaken in cooperation with the National Cancer Institute and the University of Southern California on the carcinogenicity of aliphatic and aromatic fractions of air pollution samples collected in eight metropolitan areas through the National Air Sampling Network.

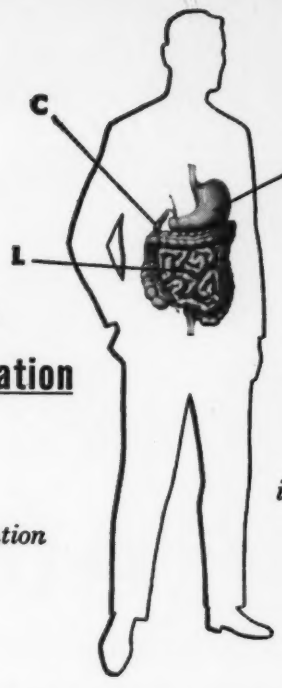
In the 2 years since the initiation of the air pollution program, several hundred requests for technical assistance on general and specific air pollution problems have been received from State and local government agencies and other organizations. The assistance provided by the Service has depended, of course, on the resources available and has varied from limited consultation to assigning personnel to work cooperatively with State and local agencies.

Staff members have been assigned to studies in the States of Connecticut, Washington, California, and Tennessee, and in Louisville, New York, Los Angeles, Philadelphia, and other areas. The cooperative State surveys which have been made in Connecticut, Washington, and Tennessee have, I believe, demonstrated a means of appraising the statewide air pollution problem at reasonable cost.

In addition to the direct technical assistance activities of the Service, demonstration project grants have been provided for study of local and regional problems. Such grants have been made to the State health departments of California, Colorado, Illinois, and Indiana, to the city-county health unit of El Paso, Tex., the Interstate Sanitation Commission, and Oregon State College. Other demonstration project grant applications are pending.

To assist in the alleviation of the shortage of technical personnel trained in air pollution research or control, the Service has been conducting short-term training courses at the Robert A. Taft Sanitary Engineering Center in Cincinnati; more than 500 trainees attended the training courses during the last fiscal year. In addition, the Service has made grants to 10 universities distributed across the country for initial development and support of graduate level curriculums, and for a limited number of traineeships.

With 2 years of the program completed, a considerable volume of results from the various studies undertaken are beginning to flow in. The Service hopes to make this information available at the earliest feasible date. Consequently, a more formal system will shortly be inaugurated for disseminating information derived from the Service's direct air pollution studies and from grants and contracts which it is supporting. Reports of a general nature together with lists of projects undertaken and other reports, publications, bibliographies, conference proceedings, and similar informational material will be available shortly.



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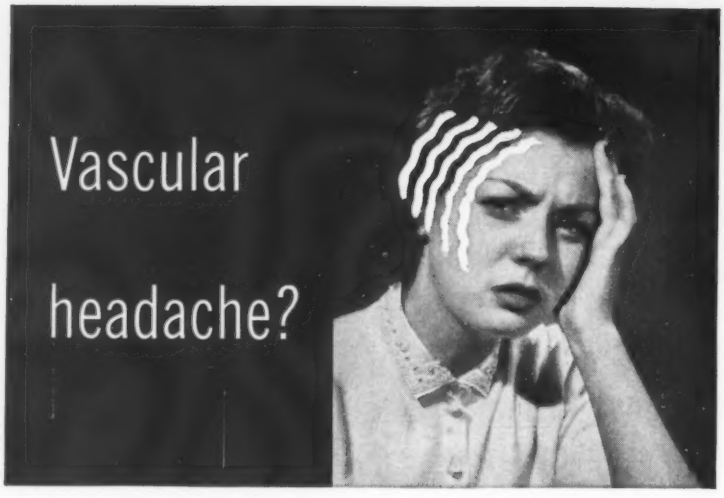

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Incidence of infectious hepatitis decreasing*

The reported incidence of infectious hepatitis in the United States has been decreasing for three successive years. In 1954, more than 50,000 cases of the disease were reported; the total in 1957 is estimated at less than one third that number. Just prior to this decline, however, reported cases rose abruptly—from less than 17,500 in 1952 to nearly three times that figure two years later.

Unlike the wide fluctuations which have occurred in the reported incidence of infectious hepatitis, the mortality from the disease has remained stable. The number of deaths has varied so little in the period 1952-55 that the death rate from the disease has remained at 0.5 per 100,000 population. One likely explanation for the divergence in morbidity and mortality trends is that the sharp rise in reported cases was in large measure an artifact, reflecting the increasing completeness of reporting; nationwide reporting of the disease began in 1952. It is expected that when the national mortality figures for 1956 and 1957 become available, they will show a decrease.

The geographic variations in the trend of infectious hepatitis cases provide further evidence that the rise between 1952 and 1954 was largely spurious. Each geographic region of the country recorded an increase in cases in this period, but the rise ranged from 4 percent in the East South Central States to more than 570 percent in the West South Central States. In general, the areas with the lowest case rates in 1952 showed the largest increases. The downward trend in cases since 1954, on the other hand, varied only moderately from one region to another.

In 1956, the reported cases of infectious hepatitis varied from 5.1 per 100,000 population in the South Atlantic States to 27.0 in the Mountain States. The areas with the next highest case rates were the Pacific States (19.8 per 100,000) and the East South Central States (14.5).

Infectious hepatitis constitutes a serious public health problem. Even now, the number of cases reported probably falls far short of the actual incidence, because in many instances symptoms may be too general or too mild to be identified. There are still no immunization procedures to prevent outbreaks of the disease and no specific methods of treatment. To bring infectious hepatitis under effective control will require much additional information regarding its diagnosis, prevention, and treatment.

*Reprinted from *Statistical Bulletin*, Metropolitan Life Insurance Company, December 1957.

Helping parents of handicapped children*

Eleanor S. Reid
Formerly Medical Social Consultant,
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State University of Iowa

Few, if any, parents know instinctively how best to help a handicapped child, and how best to handle the intense feelings of disappointment, guilt and resentment which pour over them when they realize that their child may never walk or talk, or learn, or love as other children do. Learning to live with their handicapped child, and with their feelings about him, imposes upon parents the necessity for tremendous spiritual growth and intellectual understanding. This does not come overnight. Finding out what the child needs and how to give it to him is a slow learning process. Parents need wise and patient guidance if the lesson is to become an integrated part of their thinking and being.

Handicapped children belong to emotionally healthy and mature parents and to neurotic and insecure parents. Most often they belong to average parents who

*Reprinted from *Children*, January-February, 1958.

are able to withstand a moderate amount of stress and strain, but who may develop serious problems of adjustment if the stress becomes very great. In other words, the typical parent of a handicapped child is, like most of us, a person who can take just so much and no more. This parent is subject to great emotional strain, which may affect his ability to plan appropriately for his child and himself unless relief in the form of counseling and other professional services is available.

Severely handicapped children do not, like normal children, "just grow." The growth of a normal child is governed by an inner law of development. The child will "just grow"—as a physical being and as a personality—if granted a reasonably favorable physical and emotional environment.

But the inner law of development which governs the growth of a child who was born with cerebral palsy, for example, has lost its reliability. Who, then, knows how it will operate? Certainly not the child's poor parents—at least, not at first. They are apt to be average—not exceptionally bright, not exceptionally slow. They are familiar with the way their average children grow, and they are doing fairly well by them. But what now? Their little girl is 18 months old and she does not even crawl, or say "mama," or feed herself cookies. The doctors say she will probably always be handicapped, but hasten to add that there is much that can be done to help her.

It is that word "much" that does it. Remember, the little girl's parents are the kind of people whose tolerance for stress is just average. They can take so much but no more. And here comes much more—hours of exercises, speech stimulation, assistance in feeding and dressing, plus days and weeks of discouragement and frustration when there seems to be no tangible reward for such a great investment of effort. The goal? Well perhaps the little girl may, at some far distant day, reach that goal her brothers and sisters achieved without even trying—functional independence.

On whom will the final responsibility for achieving this goal rest? Not on the child alone; only partially on doctors, nurses, social workers, and therapists. It will rest chiefly, in the long run, on the child's parents. They are the ones who must face the major responsibility for stimulating artificially the physical and emotional development of a child whose natural potentialities for development have been disastrously tampered with. No wonder that a handicapped child's parents often say, in one way or another: "This is too much to ask of me."

PARENTS AS PEOPLE

There are many ways in which parents of handicapped children say "This is too much." Social workers and nurses have heard them all again and again.

When a parent of a handicapped child says, in effect: "But I have my own life to lead," he means that the burden of his handicapped child is becoming too heavy and that he is asking, however indirectly, for help. This reaction to stress is sometimes labeled "parental rejection." On the surface that is what it seems, but the professional person who looks further may find that it is a fairly wholesome response to an almost intolerable pressure.

Twentieth-century American parents who read a great deal about child care in the periodicals are likely to come to the conclusion that our society regards them as less important than their children. Our child-centered culture expects parents to make great sacrifices in order to provide their children with "security"—that "elusive" goal of modern living. So saturated are most of us with the concept of the almightiness of the child, that we recoil when we hear a parent protest: "But I have my own life to live!" When we hear the parent of a handicapped child say this, we recoil further. "How selfish and self-centered can a parent be?" we ask.

A professional person should not be dismayed when a parent of a handicapped child protests: "But I have my own life to live!" After all, he speaks the truth. He is right, and he needs to be told he is right. He cannot be a good parent if he does not have some of the satisfactions and rewards which he needs as an individual in his own right. He cannot give up his whole life for his handicapped child and expect to be a well-adjusted, self-respecting, contributing member of society.

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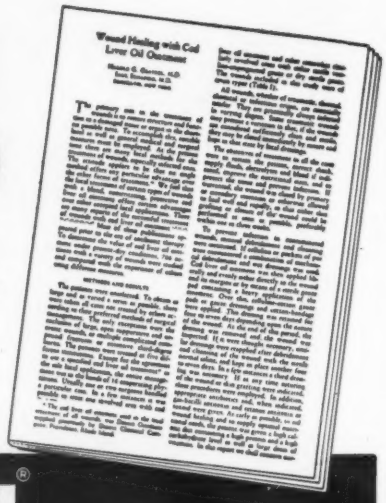
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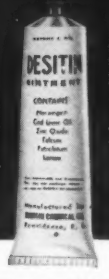

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1. Grayzel, H. G., and Schapiro, S.: Western J. Surgery, Obstet. & Gyn., Oct. 1956.

Professional persons must accept the task of lightening the load for such parents and giving them a chance to be free —free of guilt, remorse, and resentment and free of a 24-hour-a-day schedule of child care and therapy. We can say, in effect: "You do have your own life to lead, and you should be free to lead it. We will help you by sharing the physical burden, by giving you knowledge of why and how this happened so you won't feel so badly about it, and by finding adequate financial assistance for you so that the cost of medical care will not leave you bankrupt."

This approach involves the professional person in a threefold responsibility:

1. Sharing the physical burden may mean helping the parents secure admission for the child to a treatment facility, a hospital school, a special camp, or a day center. In some instances, it may even mean helping the parents to make a decision in favor of a permanent institutionalization and acquainting them with appropriate facilities for long-term care. In either event, the professional person must share with the parents a sound knowledge of the resources available for handicapped children and must pave the way toward referral.

2. Supplying the "know-why" and "know-how" involves the professional person in individual or group counseling with the parents, usually over an extended period of time. In some cases, this may require the combined efforts of a professional team, including doctors, psychologists, social workers, and parent-education specialists. It also requires the professional person to participate in public-information campaigns.

3. Securing adequate financial assistance for the care and treatment of a handicapped child means that the professional person will probably have to refer the parents to the services equipped or responsible for meeting their needs. This may be a clinic for crippled children, run under public, semi-public or voluntary auspices, where medical care can be secured free or at low cost; or a local welfare department, service club, or voluntary social agency which can help out with the expense of braces, wheelchairs, prostheses, or other appliances.

Such services can go far toward restoring to a parent his own life to lead as he sees fit. They do not take from a parent any of the rights or responsibilities which are inherent in his parenthood. They merely give him a little more time, a little more assurance, a little more security, which he can share with his family and his community. Everyone benefits, particularly the handicapped child.

UNSURE PARENTS

Some parents have another way of saying that they need help. They say, "I do not have the patience to work with a handicapped child. I cannot give my little boy what he needs. I am too nervous."

A professional person who looks behind this statement may find that the child's parents are young and unsure of themselves, and that grandma, experienced and very sure of herself, has taken over: she compulsively follows every order the doctor gives; having hours to devote to the child, she decides he might as well live with her and benefit from her determination and devotion; she exercises limbs, she fortifies diets, she stimulates speech; she does everything.

In such a situation, the young parents feel more helpless than ever and decide that they can never be as adequate as they must be to meet the child's needs. They have had so little chance to get to know their own child that he is a stranger to them. They find it increasingly difficult to find a place in their lives for him. Eventually, he is deprived of normal family experiences, his parents feel guilty about their rejection and withdrawal, and grandma continues to overprotect him because of her own need to control and dominate. For this little boy personal relationships are badly snarled. He gets his therapy daily and his vitamins every morning. But he does not know who he is or where he belongs, and his disposition is deplorable.

This illustration does not mean that grandparents are not useful and necessary to the family of a handicapped child. It means, however, that there are grave dangers for the handicapped child inherent in any situation which takes ongoing responsibility away from the natural parents.

A similar situation sometimes develops when a handicapped child is placed in foster care by official authorities because his own parents are neglecting his physical care. Like grandma, the foster parents may be determined to do everything just right. But foster homes often fade fast, since the care of handicapped children is more demanding than many foster parents ever dream. So these children all too often lose their foster parents. Who then takes their place? Who has been growing up to the ongoing responsibility of meeting their emotional needs? Not the parents—they have no permanent responsibility, and know it.

The truth is, no one has grown up with the problem. The child's own home is lost; the foster home is lost; the child, unfortunately, is probably lost, too. Too late we may recognize the hard, cold fact that half a home of his own is better for the child than no home at all, and that ineffective parents are better than none. The professional person's task is not to find new parents for handicapped children—except in rare instances, substitute parents just don't work out on a long-term basis—but whenever possible to help natural parents with their load so that they will be better able to carry it.

Moral support is what insecure parents need and the offer of concrete services together with recognition that they have a hard row to hoe. Once granted respect by the community and relief from the burden of ignorance and debts under which some of them stagger, these parents often show a remarkable ability to handle responsibility which might once have been taken away from them.

DENIAL OF REALITY

There is a third way in which parents of handicapped children tell us that they are beginning to crack under the strain of their responsibility. With what appears to be unrealistic optimism they say, "Billy is doing just fine. We are pleased with his progress."

Denial of reality as a reaction to stress is found among the parents of severely handicapped children, and especially among those whose physically handicapped children are also mentally retarded. During such a child's infancy, his parents may have gradually learned to accept the fact that he is crippled. But this seems to be as far as they can go. As the child advances in chronological age but fails to advance mentally, the parents cannot accept the additional stress of a second disability, and, although they have been told repeatedly that their child is mentally retarded, they say, "We are convinced that our little boy is a bright child. It is only his physical handicap that holds him back."

It is true that the parents of the handicapped must have help. But it must never be given in a patronizing "I know better—now you listen to me" way. In the final analysis, the parents know their child better than the professional person does and they'll probably tell the truth about him if given a chance, for a defense usually crumbles in time before a truly sympathetic listener. They'll need to be absolutely sure they are not in disrepute for past shortcomings, or that an honest confession will not be used to cut off their access to services. The professional person who understands that "he is doing just fine" is merely a defensive verbal barricade against deeply feared reality and not the expression of an unshakable conviction, will be better able to help.

Of course, there are parents whose denial of reality becomes so extreme that only intensive psychotherapy can help them. The professional person has to find out how severe this reaction is before he can judge whether or not it can be handled successfully without psychiatric help. Nurses and social workers know that they are not competent to treat severely aberrant reactions in the parents they seek to help. But recognition of their limitations should not block them from doing what they can to ease anxiety in deeply disturbed parents. They need never be afraid to listen sympathetically to persons in distress. This may not help, but it will never hurt. Afterwards they will want to consult with a competent psychiatrist about the next step to take.

THE HOPELESS

Not so different from the unrealistic optimists are the unduly pessimistic parents who say, "It's a lost cause." They

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LOS ANGELES

are afraid to be hopeful lest their hopes be dashed. Fearing that they cannot sustain the emotional stress of another disappointment, they say, "We expect nothing. If progress occurs in our child, we'll regard it as a miracle."

These parents react to stress with a defeated attitude; they are afraid to keep trying. A professional person should remember that when the parents of a handicapped child sound a note of defeat they are probably trying to defend themselves against an overpowering fear. He should let them know that *he* knows how hard it is to be cheerful in the face of cruel disappointment. But he must turn the focus to the hopeful facts—the child's strengths, his potential for improvement. He should offer services and let the parents know that a treatment center, a hospital school, a speech correctionist, or whatever is needed will share the burden of their fears and help them make appropriate plans for their child's habilitation. In such cases, nothing succeeds like success. When such parents learn about their child's potentialities and about the services available and see the child improving under appropriate treatment, the truth frees them of their fear of failure. But always the professional persons must remember never to deviate from the truth, never to hold out unjustified hope.

PROJECTION AND WITHDRAWAL

There is a fifth way in which parents tell professional persons that they need help. They say: "It was all the doctor's fault. He was careless when the baby was born," or "He should have known I was RH negative. The baby should have been transfused at birth," or "It runs in my husband's family."

Some of these parents are factually right. Some are very wrong. But whatever the facts, they are reacting to stress by projecting blame for the cause of their predicament upon someone else. This relieves them of a sense of full responsibility for their own actions and attitudes, and so stands in the way of their planning a sound program for their child. Such parents need the kind of counseling which can help them express their feelings and free themselves of any sense of guilt they might have in regard to the child's retardation.

There is yet another way in which parents of handicapped children tell professional persons that they need help. They simply do not say a word. They withdraw into their shells and do not talk about their child. They seem ashamed and sometimes even try to hide their imperfect child from the world to avoid embarrassment. Such parents are saying, in their silent way, that they cannot carry the weight of their shame about their inability to produce a normal child. They see their offspring as a product of their own imperfections. The child is a constant reminder of their inadequacy. Lest this inadequacy be paraded before the world, the parents keep themselves and their child from society and the child grows up without normal social experiences.

In its extreme forms, this type of withdrawal indicates deep-seated mental illness. In milder forms, the warm support of a professional person can do much to encourage such parents to make normal social contacts for themselves and their child. "Ego-supportive treatment" is the term social caseworkers use to describe the process which seems to be most helpful in relieving the anxieties of those who tend to withdraw. The parents are warmly approved for any positive steps they make toward regaining contact with society. They gain confidence in their own worth from the knowledge that their doctors, nurses, and social workers like them, esteem them, and care about them as individuals. With more self-assurance, they begin to appreciate the worth of their child, however handicapped he may be. Having learned to relate in a new way to a person whose friendship offers them longed-for security, they find confidence to face the world.

GUILT REACTIONS

Some parents indicate when the strain of their burden is becoming too great by showing feelings of guilt in regard to the child's handicap. "I blame only myself," they say. "It is not the child's fault."

Some of these parents know why they feel guilty. They tell about not having secured proper medical care for a sick baby, or having allowed the child to go swimming during the polio season, or not having followed diet instructions during pregnancy, or having taken the child to a chiropractor instead of to a physician.

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Others are pervaded through their whole being with a sense of guilt, the source of which they cannot name. The guilty feeling, then, may stem from deeply buried fears of religious or sexual error, the child's handicap being regarded as a punishment from God for the parents' sins.

To care for a crippled child under a heavy burden of guilt is a heavy task. The guilt-laden parent needs immediate help. He needs counseling, education, services—everything that will help him regard the handicapping condition not as a punishment but as an accident. When his energies are no longer totally invested in inner conflict but free to make plans and find care for the child, then the whole family, including the handicapped child, stand to gain immeasurably.

PARENTAL ATTITUDES

These are a few of the ways in which families of handicapped children give warning that they are faltering under their burden and ask for help. Let us hope that the ears of doctors, nurses, and social workers will be tuned to hear the true meaning of what is being said, and that their professional services will be broad enough and flexible enough to meet the needs. For if the families of handicapped children can be salvaged the children can probably be salvaged, too. But if the parents are lost, the cause is lost.

Nonfatal accidents among youngsters*

Accidental injuries occur with considerably greater frequency among boys than among girls, but only a relatively small proportion of the victims in each sex are hospitalized for their injuries. These are the conclusions drawn from a study of the experience of dependent children under age 20 of Metropolitan Life Insurance Company office and field personnel insured under the Company's Group insurance program. The study relates to claims on which first benefit payments were made during the three-year period from August 1953 through July 1956. This experience is limited to cases involving surgery, whether hospitalized or not, and cases receiving treatment in a hospital, whether as inpatients or outpatients.

The annual claim rate for accidental injuries, including both hospitalized and nonhospitalized cases, was 59.5 per 1,000 for males and 33.7 per 1,000 for females, a ratio of 1¾ to 1 in the age group under 20. However, the ratio of male to female rates varied markedly with age, increasing progressively from about 1⅓ to 1 under age 5 to practically 3 to 1 at ages 15-19. These ratios reflect the fact that for males the lowest claim rate is at the youngest age group while among females it is at 15-19 years.

In this experience, only one seventh of the injured were hospitalized for at least one night, the proportion being almost identical for the two sexes. Among males the incidence of claims for accidental injuries requiring at least one night of hospitalization increased with advance in age, but the rates for females showed no definite pattern.

The number injured in falls exceeded by a wide margin the number hurt in any of the other types of accident; this pertained both to cases hospitalized and to those without hospital stay. Falls accounted for two fifths of the hospitalized cases among males and for nearly one half among females. Motor vehicle accidents ranked second among the causes of accidental injury requiring hospitalization. The incidence of nonhospitalized motor vehicle accident injuries was somewhat higher than that for the hospitalized, yet this type of accident ranked only fourth as a cause of injury among the nonhospitalized cases. Outranking motor vehicles in the latter category were injuries caused by cutting and piercing instruments and those sustained

*Reprinted from *Statistical Bulletin*, Metropolitan Life Insurance Company, October 1957.

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1. Brooks, L. H.: Use of Malt Soup Extract in Treatment of Pruritus Ani (American Proctologic Society, April, 1957. To be published.)

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in other transport accidents, mainly those involving bicycles.

For children under age 20 as a group, the average hospital stay per claim was 5 days. For males, the average stay varied from a low of 4.6 days at ages 5-9 to 5.6 days at ages 15-19. For females, the range was greater—from 3.6 days at ages 10-14 to 7.6 days at ages 15-19. About 40 percent of all those hospitalized stayed only one day, 16 percent for two days, and 9 percent for three days. Only 13 percent stayed 10 days or more, but these cases accounted for about 56 percent of the total days of hospitalization in this study.

Both the boys and the girls injured in motor vehicle accidents were hospitalized for about 10 days, on the average—longer than for any other common type of mishap. Those hospitalized because of injuries sustained in falls stayed an average of about four days. The average period of hospitalization for girls admitted because of burns appears to be relatively long, but it reflects mainly the extended hospital stay of only a few cases. On the other hand, short periods of hospitalization—averaging less than two days—were required by boys and girls admitted because of accidental poisoning and by girls hospitalized because of transport accidents other than motor vehicle.

For an appreciable number of children, more than one claim for accidental injury was submitted during the three-year period of observation. In fact, nearly 14 percent of the boys and about 9 percent of the girls under age 20 who received benefits for an injury also received benefits for at least one subsequent injury during the same period. Of all the children who had a claim, about 10 percent had only one additional claim; a little more than 1 percent had two additional claims; only a negligible proportion had a total of four or more claims for accidental injury during the three-year period.

Marked gains in industrial safety*

American industry has been eminently successful in reducing the frequency of accidental death on the job. Although the number of employed persons in the United States has increased by about 15 million in the past 15 years, the loss of life in occupational accidents has decreased by nearly 3,000—from 17,000 to little more than 14,000. The occupational accident death rate per 100,000 workers decreased more than one third between 1939-41 and 1954-56, that is, from 36.9 to 23.9.

Available data indicate that many industries, both manufacturing and non-

*Reprinted from *Statistical Bulletin*, Metropolitan Life Insurance Company, October 1957.

manufacturing, have improved their safety record, some to a very marked degree. The transportation industry provides a notable example. The occupational accident death rate for railroad engineers, firemen, conductors, brakemen, and other trainmen, as a group, dropped from 136.2 per 100,000 in 1939-41 to 47.3 in 1954-56, or nearly two thirds. As is the case in most industries which have achieved an extraordinary reduction in accident mortality, the railroads have for many years given special and continuous attention to safety. Their program centers about three major activities: the development and use of safer equipment, efforts to obtain strict compliance with safety rules and practices, and safety education among those who use the railroads.

In the past 15 years, workers in the petroleum industry, despite the potential hazards of fire and explosion, have experienced a reduction of more than two fifths in their on-the-job accident fatality and permanent total disability rate. The rate for all departments combined—including exploration, drilling, and refining—dropped from 31.9 to 18.0 per 100,000 between 1939-41 and 1954-56. Part of the improvement is attributable to technological advances in the industry. A number of processes which in the past were controlled manually are now being monitored by means of instruments, with a consequent reduction in the proportion of workers engaged in hazardous tasks.

Similarly, in the chemical industry the introduction of automatic machinery in many operations has apparently lessened the exposure of workers to accident hazards and toxic materials. The chemical companies which report their accident experience to the National Safety Council show a drop of nearly three fourths in the rate of fatalities and permanent total disabilities during the 15 years under review. The pulp and paper manufacturing industry has done almost as well.

Several of the more hazardous industries have likewise made noteworthy progress in lowering the level of their fatal accident rate. One example is the coal mining industry, in which workers are subject to special hazards associated with working underground. The accident death rate among coal miners in the United States decreased from 230.6 to 166.7 per 100,000, or more than one fourth, between 1939-41 and 1954-56. The Bureau of Mines attributes the improvement, in part at least, to safer procedures and equipment, improved methods of mining, and to increased mechanization. The lumber and the electrical industries—other industries where comparatively high accident mortality still prevails—appear to have reduced their fatal injury rate by approximately one third in the past 15 years, according to the experience of companies reporting to the National Safety Council.

The progress made in industrial safety reflects the efforts of management and labor, Federal and State agencies, the National Safety Council, the American Standards Association, and other groups.

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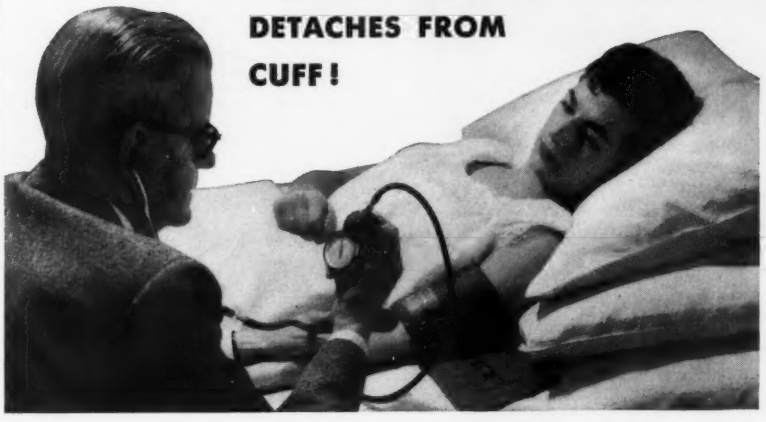

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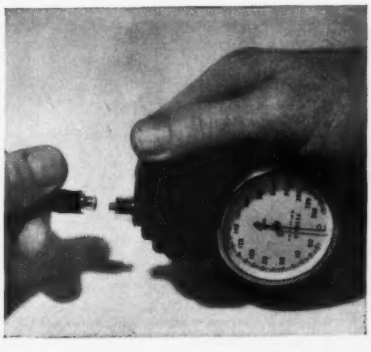

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But much more remains to be accomplished, particularly by those segments of industry which have lagged behind in promoting safety programs. Not only do accidents arising out of and in the course of employment still take an annual toll of about 14,000 lives, but they also result in more or less serious injuries to two million workers each year.

The following sources were used in the preparation of this article: *Review of Fatal Injuries in the Petroleum Industry,* published annually by the American Petroleum Institute; various reports of the United State Bureau of Mines; annual issues of the *Accident Bulletin of the Interstate Commerce Commission; Accident Facts,* 1957 edition, and *Accident Rates 1955,* both of which are published by the National Safety Council.

Aspects of the suicide problem*

The suicide rate in the United States has been exceptionally low in recent years. In 1952-55 the rate averaged 10.1 per 100,000, or about 10 percent below the level for 1946-51, the years immediately following World War II. Moreover, provisional figures for 1956 indicate that the frequency of suicide has fallen below 10.0 per 100,000 for the first time on record.

The reduction in suicide has extended to the entire range of ages in both sexes, when figures for 1953-55 are compared with those 15 years earlier. Among the white males the reduction was about one third in the broad age range 25-64 years, and was at least 20 percent in practically every other age group. Among white females the downward trend in suicide was even more rapid. Under age 25 their rate in 1953-55 was less than half that in 1938-40; at ages 25-44 the reduction exceeded 40 percent, and even at ages 65-74 it was more than 25 percent. As a result of the more favorable trend among females, the sex ratio of the suicide rate increased at almost every age group.

The sexes differ in the relative frequency with which they use various means to commit suicide. More than half of the white males who die by their own hand choose firearms as the means. Hanging and strangulation account for an additional one fifth, and poisoning for almost as large a proportion. All the other means—including drowning, the use of cutting and piercing instruments, jumping from high places—were together responsible for no more than one tenth of the suicides among the males.

Among females, however, poisoning is the most common means of suicide, being used in one out of every three cases. The barbiturates and other soporific substances outranked the other poisons, accounting for nearly 15 percent of all suicides among females, compared with less than 3 percent of the total among males. Hanging and firearms, next in order, each were chosen in nearly one quarter of the cases.

The relative frequency of suicide varies markedly with marital status, being lowest for the married, somewhat higher for the single, and highest for the widowed and divorced. In 1949-51, the latest data available on this point, the age-adjusted suicide rate among white males, aged 20-74 years, ranged from slightly over 20 per 100,000 for the married to 80 per 100,000 among the divorced. The rate for single men was a little more than twice that for the married; the widowed had a suicide rate more than 3½ times and the divorced nearly four times that for the married. Among white females the disparity in the frequency of suicide between the married and the unmarried was less pronounced, the rates ranging from 6.6 per 100,000 for the married to 19.2 for the divorced.

In general, the suicide rate in our country is lowest in the South and highest in the West. In 1955 the rate varied from 7.9 per 100,000 in the East South Central region to 12.3 in the Mountain States and 14.9 in the Pacific region. The variation is wider when individual States are considered, the suicide rate in 1955 ranging from 6.0 per 100,000 in Mississippi to 26.8 in Nevada. To a large extent, the low frequency of suicide in the South reflects the high proportion of nonwhites in the population there. The suicide rate for nonwhite persons in the country as a whole is only about one third that for the white population.

Suicide, despite its reduced frequency in recent years, continues to be a major cause of death. In 1956 somewhat over 16,000 people in the United States were reported to have died by their own hand. The studies being made by psychiatrists and investigators in the behavioral sciences may help to reduce this needless loss of life.

*Reprinted from *Statistical Bulletin,* Metropolitan Life Insurance Company, November 1957.

Books received

Books received for review during the period from January 5 to February 5, are listed below. Reviews will be published as space permits.

OFFICE GASTROENTEROLOGY. By Albert R. Andresen, M.D., Clinical Professor Emeritus of Medicine, State University of New York College of Medicine at New York City; Attending Physician, Long Island College Hospital; Area Consultant in Gastroenterology, Veterans Administration. Cloth. Pp. 707, with illustrations. Price $14.00. W. B. Saunders Company, West Washington Square, Philadelphia 5, 1958.

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Professions Allied to Medicine. By John C. Krantz, Jr., Professor of Pharmacology, School of Medicine, University of Maryland; Member of the General Committee of Revision of the United States Pharmacopeia; and C. Jelleff Carr, Senior Research Pharmacologist, Psychopharmacology Service Center, National Institute of Mental Health. Formerly Professor of Pharmacology, School of Pharmacy, Purdue University and Professor of Pharmacology, School of Medicine, University of Maryland. Ed. 4. Cloth. Pp. 1313, with illustrations. Price $14.00. The Williams & Wilkins Company, Mount Royal and Guilford Avenues, Baltimore 2, Maryland, 1958.

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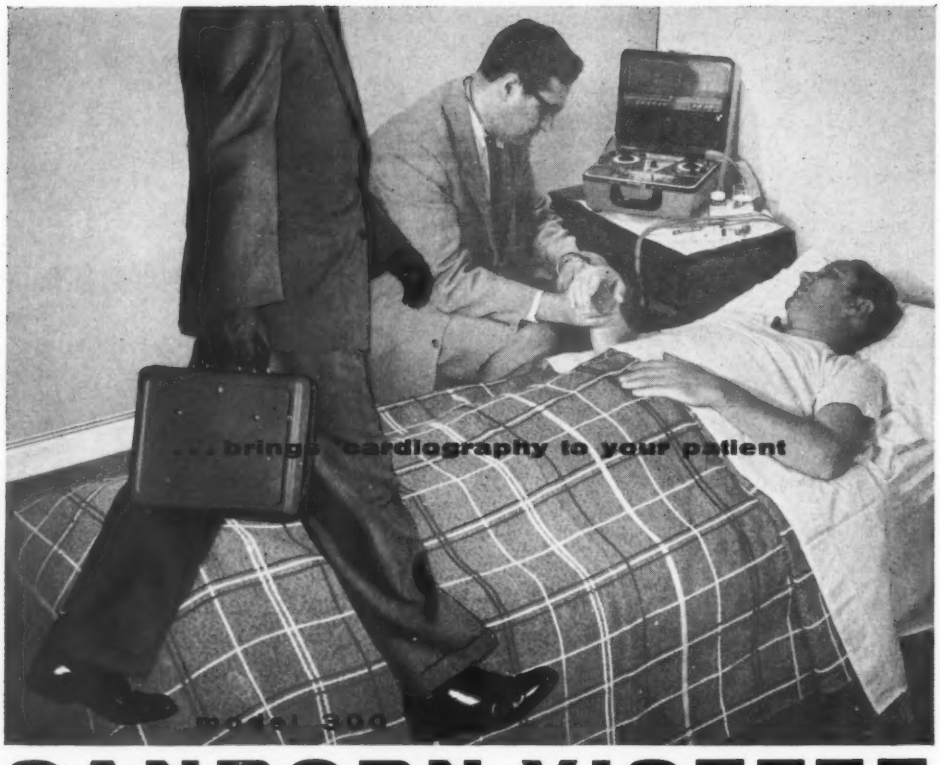

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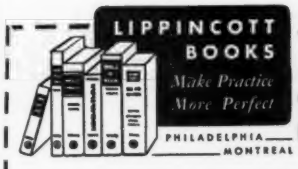

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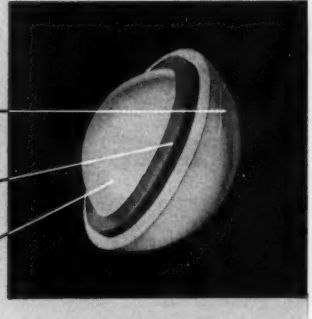

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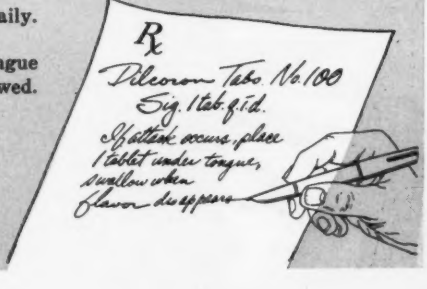

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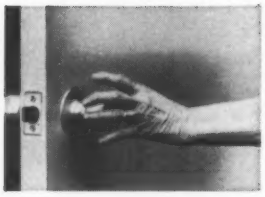

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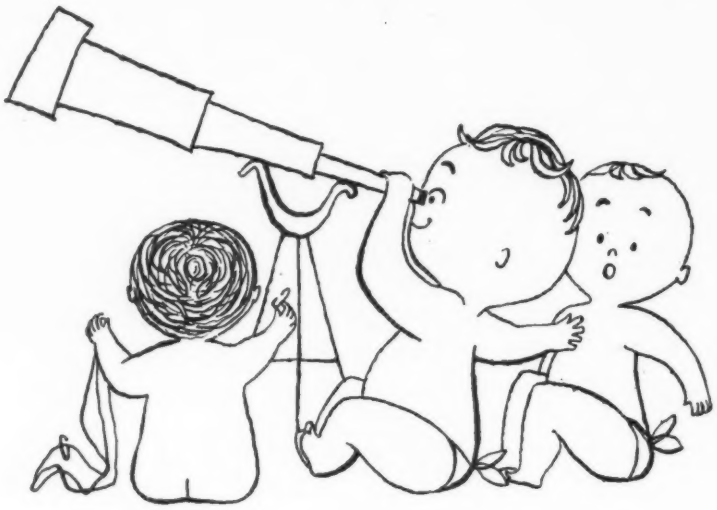

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